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UNIVERSITY OF ALBERTA

Physician Advocacy of Exercise for Older Adults

by

Karen Patricia Branigan

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfilment of the requirements for the degree of Masters of Science.

Department of Physical Education and Sport Studies

Edmonton, Alberta

Fall 1995

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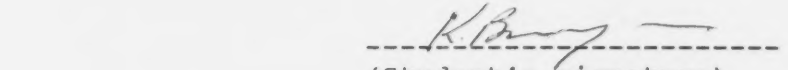

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled, "Physician Advocacy of Exercise to Older Adults", submitted by Karen Branigan in partial fulfilment of the requirements for the degree of Master of Science in Physical Education and Sport Studies.

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Date: July 31/95

DEDICATION

This thesis is dedicated to my mother who believed in active living, the simple things that life has to offer, and in education.

ABSTRACT

This comparative groups design examined a random sample of 64 physicians along with a volunteer group of 121 older adults to determine if differences existed between the groups on reported physician support of exercise. Using a Mann Whitney U test, four of seven physician support variables were significantly different between groups. This suggests a lack of congruency between groups in some perceptions of health promotion practices by physicians.

A secondary analysis of this study involved a block multiple regression analysis of only the older adult data, to determine if physician support of older adult exercise held any predictive ability for older adult exercise levels. There was no predictive ability in the combined physician support of exercise variables.

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CHAPTER I. STATEMENT OF THE PROBLEM

Introduction

Concern is growing today for the health and well being of older adult Canadians. We are bombarded daily with information on continued cuts to our health care system and social programs. It has become imperative to find more cost effective ways to enhance the quality of life, independence and well being of older adults. As our population matures, the number of adults age 60 years and older is expected to double between 1980 and the year 2000 (Health & Welfare Canada, 1982). Approximately 12% of the population will fall into the 60 plus age category within the next five years. Important implications arise from this trend, since the elderly are the largest consumers of health care services (Fitness Canada, 1983; Stephens & Craig, 1990). Within less than twenty years, with the current demand for health care, all hospital beds would be filled by older adults.

A growing body of evidence is accumulating which supports physical activity as a health promotion tool for older adults (Buchner, Beresford, Larson, LaCroix & Wenger, 1992; Haskell, 1984; International Federation of Sports Medicine, 1990). In fact, a substantial part of the aging process is due more to habitual inactivity than to disease or an irreversible aging process (Fitness Canada, 1983; O'Brien & Vertinsky, 1991). Dr. Roy Shephard (1978) attempted to calculate the cost impact on health services of a national physical activity program for the elderly. His estimates

suggest that as much as one third of acute and chronic treatments services could be saved by such a program (Shephard, 1978). Another way to express this value is as an increase in years of independent living by 8.6 years.

Several national surveys concur, demonstrating that older Canadians are among the least active as a group, although between 1981 and 1988 the numbers did increase somewhat (Fitness Canada, 1983, Health & Welfare Canada, 1992; Stephens & Craig, 1990). A recent national survey stated that "motivating older adults to participate in physical activity was considered to be the number one issue" (Fitness Canada, 1992, p.1). This finding may indicate that current knowledge is not being effectively imparted to older adults.

Particular to this age group is a strong belief in physicians as the gatekeepers for all issues related to health. Acknowledging this phenomenon, several recent studies have included physician advice as a reason for participation in physical activity (Edwards & Rootman, 1990; Fitness Canada, 1983; O'Brien-Cousins, 1993; Stephens & Craig, 1990). Older adults, more than any other age or social group, perceived physician support as an important for physical activity participation (Edwards & Rootman, 1990; Fitness Canada, 1983; Godin & Shephard, 1990; Stephens & Craig, 1990). An important aspect of this relationship is that one of the recommendations of the 1981 Canada Fitness Survey was that "physicians should recommend exercise more often, since their advice has a

positive impact, especially as age increases" (Fitness Canada, 1983,p.38).

As a result of the current facts, physical educators have much work to do to obtain a better understanding about older adults and their beliefs about exercise. Towards that end a group comparison survey was conducted to determine the physician's role in promoting exercise to older adults. A review of the current literature in exercise behaviour and benefits will be addressed, as well as the physicians' behaviours and beliefs in health promotion. The design of the study shall be discussed in depth, and followed by the results and conclusions.

The Problem

An examination of literature regarding physician health promotion practices suggests that 90% or more of physicians feel that promoting health to their patients through risk behaviour management is important. In the studies conducted, so far approximately half of the physicians claim that they do promote exercise to their older patients (Price, Desmond, Losh & Krol, 1988; Valente, Sobal, Muncie, Levine, & Antlitz, 1986; Wechsler, Levine, Idelson, Rohman, & Taylor, 1983). However, physicians do suggest that there are barriers which make health promotion within medical practices difficult (Price et al., 1988; Wechsler et al., 1983;). These barriers have not been well identified and thus further examination is

warranted.

More older adults need to become physically active for personal health improvements and increased well being. Physicians have the capacity to impact on this area of health pertaining to older adults, yet the numbers of physically active older Canadians do not reflect successful health promotion practices. In light of health care cut backs, identifying barriers and breakdowns in the older adult physician relationships becomes increasingly important.

While some physicians say they prescribe exercise to older adults (Valente et al, 1986; Williams, Bucks & Whitfield, 1989), and older adults claim that they take heed of their physician's advice (McPherson, 1986; Edwards & Rootman, 1990), a very small percentage are actually exercising at health promoting levels (Fitness Canada, 1983; Stephens & Craig, 1990).

The main purpose of this study was to examine the physician views and older adult views in more detail, and determine if there was congruency between the two groups regarding physician support for late life exercise. A secondary purpose was to determine if physician support of exercise, as perceived by the older adult, is predictive of higher levels of physical activity. These two issues need to be addressed in order to determine if the physician's office is a viable setting for increasing physical activity levels of older adults. Specific questions which are addressed in this

study are:1) Do older people and practising physicians agree that the physician's role in advocating exercise is important?; 2) Do beliefs about physician support for older adult physical activity have a relationship with current activity levels?; 3)Do older people rank physical activity higher than physicians as an important health behaviour?; 4)What are the barriers to exercise advocacy identified by physicians?

Significance of the Problem

This study is significant and original in its bifocal nature, examining both older adult perspectives and physician's perspectives on the role that physicians have in the area of exercise promotion for the elderly. By comparing both perspectives, we can begin to determine if enhancement of the physician role in disseminating information, offering encouragement or advice, should be a key approach to activating more older people. If, for example, physicians report encouraging their patients to exercise, and older adults report they are not getting encouragement from their doctors to exercise, then perhaps internal aspects of the physician-patient relationship need further examination. If both physicians report giving encouragement and older people report receiving encouragement, then perhaps the patient-physician relationship is contributing all it can to exercise advocacy. This would suggest physician support is not the

barrier that is the problem. Conversely, if both groups report not giving (or receiving) exercise encouragement, then either, a barrier to late life exercise has been identified and more education is necessary to remove this barrier, or this arena is not viable for exercise advocacy. Studies investigating the area of health promotion or preventative health practices have focused on the medical practice or the patient behaviour. This study is unique in examining perspectives rather than practices of patient behaviour. At the moment we do not know if physicians and older adults perceive the same role for physicians in health promotion.

Limitations

A major limitation which has plagued many research studies on older adults, is the lack of random sampling designs. The government has census data and address lists for pensioners, but these remain confidential and can not be accessed by the public. Therefore there is no large population sampling framework available. The sample which is affordable to most researchers is almost certainly a volunteer sample; a sample which is self-selected is certain to add bias to the data collected. Although there is some bias inherent in the majority of research designs, the results of increasing bias can decrease the importance of these results by reducing variability of the sample. Moreover, the results of a volunteer sample are not generalizable to the population at

large.

Resource constraints also impact on this study by reducing the possible size of the physician sample. Previous indications warn that physicians, as a group, do not enthusiastically respond to questionnaires (personal communication). Without financial incentives, physician response rates remain low, even after follow up correspondence.

Instrumentation provides another source of limitations in this study. As yet valid and reliable instruments have not been developed to address this area of study. The pioneering nature of this study and its questions, while interesting and worthwhile, must be recognized as a preliminary attempt to investigate the congruence of patient and physician perspectives. The instruments designed for this study lack adequate statistical support and must be viewed merely from a perspective of face validity.

Definition of Terms

Physical Activity/ Exercise - any body movement produced by the skeletal muscles and resulting in an increase in energy expenditure. Exercise and physical activity are used interchangeably in this study, as exercise is a subset of physical activity.

Older Adult is a person defined by chronological age of 55 years or older.

CHAPTER II. REVIEW OF LITERATURE

Our world is changing daily, as health care budgets shrink, along with the work force, and the greying of North America spreads. Societal change is forcing us to reevaluate the knowledge we hold to help ourselves in preventing the negative outcomes that lay before us. While the wellness movement faces growing pains, research is needed to uncover the factors which most affect healthy behaviour and disease prevention. Several theme areas are addressed in subsequent sections: changing demographics of our population; theories of physical activity; the benefits of physical activity; physician's capacity and ability to affect change in older adults; physicians practices in health promotion; and public health practises and beliefs.

A Greying Nation

If there is a trend on which researchers agree, it is the changing demographic distribution of our population. Several contributing factors have caused an age shift to occur. The first and seemingly most prevalent issue relating to changing age categories, is the aging of the 'baby boomer' population. This group includes persons who were born during a twenty year period roughly between 1940 and 1960. The term baby boom was coined when a large birth rate increase resulted after the second World War, due to men returning home after long periods away from their homeland.

As could be expected, the trend in aging populations is not specific to Canada or even North America. It is practically impossible to pick up a health related piece of research which does not refer to the aging population (Health & Welfare Canada, 1995; Camacho, Strawbridge, Cohen & Kaplan, 1993; Duffy & MacDonald, 1990; Bokovoy & Blair, 1994; National Advisory Council on Aging, 1994). To illustrate what sort of numbers we are facing, the National Advisory Council on aging reported statistics on the increasing numbers of seniors. The proportion of people over age 75 grew by 22% in a ten year period up to 1991, in addition, the number of people age 85 plus, grew by 31%. Following current population projections, by the year 2030, 20% of the population will be over age 65 (Health & Welfare Canada, 1982). To further create a perspective of this situation, in 1991 over 94,000 Canadians were aged 90 or older (National Advisory Council on Aging, 1993).

Another factor which plays a role in the future and the changing population trends is the birth rate. This trend has displayed a declining pattern since the end of the baby boom and now rests approximately at 1.7 births per women of child bearing years, which is below replacement level (Edmonton Sun, 1993). This becomes a factor when considering that by the year 2036, half the Canadian population will be age 50 or over. As a result there will be less people in the work force who will be contributing to the financial care of our seniors.

In conjunction with a declining birth rate and an increasing population age, is the increase in the years of life expectancy. Between 1975 and 1985 life expectancy increased from 70 to 73 years for men, and from 77.5 to almost 80 years for women (Health & Welfare Canada, 1995). It is important to note that not only do women have a longer live expectancy, but also they make up a significantly larger portion of the elderly population by 4 to 1 in those aged seventy years old or over.

Immigration is the other noted contributing factor to the greying nation, but it's contribution is diminished compared to the other factors. Never the less, all these factors considered, leaves us looking down the road to an older population base with less of a resource structure than we currently enjoy. One national system which will encounter enormous problems is the Canadian health care system.

Health Care Uses and Expenses

The federal government has been cutting back on monies spent on health care systems, from paying for a third of the total health care budget in 1980, down to less than a quarter in 1991. This, in turn, has placed more financial responsibility on the provincial governments and on individuals. Currently approximately 30% of health care dollars comes from private sources (NACA, 1994). Canada has among the most expensive public health care systems in the

world and spends 10% of its gross domestic product on health care, which is slightly less than the U.S. which does not offer the same service or system. In Alberta, vast changes are being effected in the structure and delivery of health care. Yet to be determined is an understanding of whether these changes will be more cost effective and still provide a quality of health care delivery. As more hospital beds are closed and community health centres are opened, the need to activate senior citizens in preventive measures becomes more paramount.

Older Adult Health Care Patterns

There is currently no particular consensus on exactly how much of our health care dollars are used by older adults. Since health care statistics are generally kept by the provinces the statistics vary, along with the percentage of older adults in each province. One estimate suggested that 40% of the national health budget was spent on older adults in 1991. The general picture is that between 20-50% of expenditures are attributable to the older segments of the population (NACA, 1994). The impact that our aging population will have on health care expenses is also a topic of debate. There appears to be two opposing schools of thought regarding how to interpret health care expenditures. Depending on the variables included in the calculations, the outcomes are much different (Getzen, 1992). The Organization for Economic

Cooperation and Development (OECD) determined that "population aging was estimated to account for 22% of the growth in health care costs between 1960 and 1988. The remaining 78% of growth in health care costs was attributed to factors such as inflation, the growth of the Gross National Product (GNP) and "to political and professional choices". (NACA, 1994, vignette #25). This trend suggests that as the older segments of the population grow, more pieces of the health care pie will constitute older adult care. While to date the aging population may not have made a huge impact on the growth of health care expenses, there is no doubt that older adults are the largest consumer segment of health care.

The National Council of Aging (1994) reported that currently older adults account for 12% of the population and use 25% of prescription medication, this is an area which represented the largest rise in health care costs between 1987 and 1991. Furthermore that as much as 15% of hospital admissions are due to improper use of medications. It seems likely that a large portion of those patients would also be older adults. Manitoba statistics reported that with increasing age, the length of stay in a hospital increased relatively linearly. In addition, with less than 25% of older adults in hospital, 5% of the older adults who were hospitalized consumed 59% of the hospital days of a given year (NACA, 1994). Statistics from Saskatchewan indicate that all people are using physician services more than in the past.

Further, seniors use their doctors services more often than other age groups. They report that in a one year period older adult men saw a doctor ten times more that those age 45-64, and women 9 times more than their younger counterparts (NACA, 1994). These trends appear to be consistent in most provinces. Ontario reported that older adults make up 10% of the population and they use 44% of the beds in acute care hospitals. There does not seem to be any question as to the high consumerism of health care by the elderly.

The use of higher levels of health care service among the elderly can be partly attributed to the longer life expectancy. Medical services and technology have made great advancement in many areas, but to date the problems of chronic disease which predominantly affects the elderly, have not subsided. According to Feingold (1994) a person who lives to be 76 years old will be ill approximately 11 years of that life, and predominantly in the last 10 years of life. It is important to note while disease in one's later years is common among seniors, it is not inevitable. Campion (1994) states that "functional impairment and chronic disease increases expontenially with age, p.1819. In reference to the oldest old, the report mentions that common impairments in the elderly include: hearing , vision, falls, hip fractures, stroke cancer, and cardiovascular disease.

Another area of interest to health researchers and older adults deals with costs incurred from medical treatment as a

result of injuries due to falls. One study in Washington state examined costs and frequency of hospitalization for fall related injuries in older adults. The results showed that in 1989, in Washington state alone, over 53 million dollars was spent on fall related injuries in those 65 years and older (Alexander, Rivara, & Wolf, 1992). In Canada, where the elderly are often faced with hazardous winter conditions, this expense would remain a substantial contributor to health care expenses of older adults. Other chronic conditions which commonly afflict large numbers of elderly persons and result in frequent medical intervention include osteoporosis and arthritis.

The Distinction Between Aging & Sedentary living

There is a new term which is gaining popularity among health researchers, known as hypokinetic disease. This is not specific to older adults, however, they are a large part of the population which it affects. According to Vertinsky & Auman (1988)

> Authorities on aging believe that a substantial part of the degenerative process attributed to aging may be due to habitual inactivity rather than a true disease or an irreversible aging process. Hypokinetic disease results from insufficient movement; declines in flexibility are more strongly correlated to disuse than to age degeneration. (p.13)

As illustrated, the term hypokinetic refers to lack of movement. Therefore, disease is not an inevitable process, and researchers are now trying to untangle which factors are

part of the aging process, and which factors are attributable to preventable circumstances such as lifestyle choices.

Historically, aging has been characterized as a decline in functional ability, involving loss of both physical and mental capacity to contribute productively to society. The societal view has encompassed many stereotypes which include such phrases as, 'put out to pasture', a time to 'slow down', and other statements which imply a change of activity. The Oxford dictionary defines aging as "to cause or allow to grow old or mature or show effects of the passage of time" (p.18). If aging is observable, then the effects of aging are well-observed by behaviour changes. Society can have a profound effect on the roles which the old are allowed to play in the culture.

Foldesi (1989) in a study examining the societal view of older adults as exercisers, states

> In modern industrial societies, old people beyond the social division of labour were for a long time regarded as a group with diminished value, being characterized by poor health, poverty, isolation, loneliness, and even senility. (p.108)

In many ways, a culture can be very rigid in it's role assignment for the elderly. The study goes on to say

> the expected behaviour patterns of old people with regard to sport are still comparable to what was expected of their fathers and grandfathers before them. (p.109).

Although the roles of the elderly may not have changed appreciably, current knowledge asserts that the physical and

mental decline in function may not be due to the aging process itself. A view held by many health scientists, is that as much as 50% of the decline previously associated with aging, may be due to habitual inactivity (Fitness Canada, 1993; Spirduso, 1986; Vertinsky & Auman, 1988). Postponement of age effects does not appear to affect all physiologic systems. Several known unchangeable age related responses of the body are: arterial wall rigidity, cataract formation, greying of hair, thinning of hair, kidney reserve, and elasticity of skin (Spirduso, 1986). In other words, the aging process is at some point inevitable. Baker & Martin state,

> At some level, all theories of aging predict that aging results from damage to molecules, cells, and eventually tissues and organ systems from both endogenous and exogenous factors. As soon as the level of damage exceeds the intrinsic capacity for repair or regeneration, the individual has an increased likelihood of disease and death. (p.307).

However, a vast number of physiologic responses are amenable to improved function with proper use and care.

Cardiovascular health has drawn a great deal of scientific inquiry since this disease is the number one cause of death among Canadians, with a rate of 41% in men and 44% in women (Health & Welfare Canada, 1995). The rate of death from cardiovascular disease rises sharply among men after the age of 35 and in women around the time of menopause. Several researchers have tried to depict age related decrements in physiologic systems function. Baker & Martin (1994) illustrate what has been characterized as rate of aging

graphs. In Figure 1 comparison of several physiological parameters demonstrate that not all functions change with age, or change at the same rate. Figure 2 emphasizes that the aging process is a highly individualized function and while the literature often illustrates group averaged rates of decline in physiologic function, there is a great deal of variation between individuals.

Figure 1. Cross-sectional differences in the age of onset and rate of change in physiological system in male subjects enrolled in the Baltimore Longitudinal Study on Aging. Note. From "Biological aging and longevity: Underlying mechanisms and potential intervention strategies. by G.T. Baker & G.R. Martin, 1994, Journal of Aging & Physical Activity, 2, p.304-328.

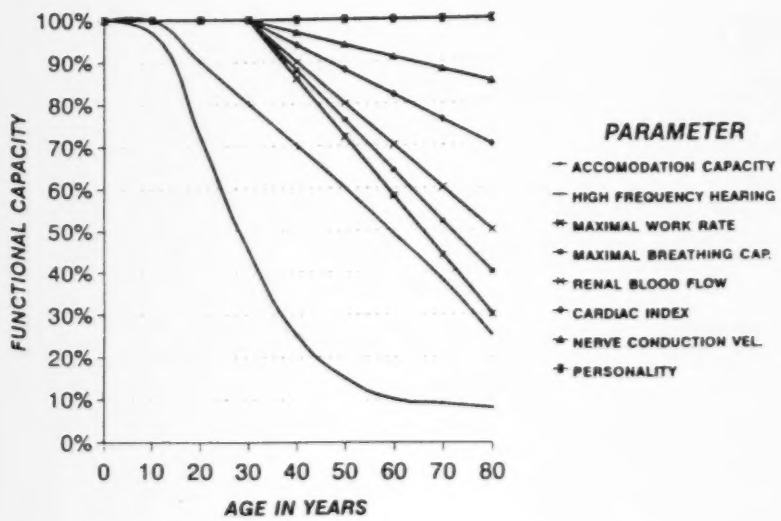
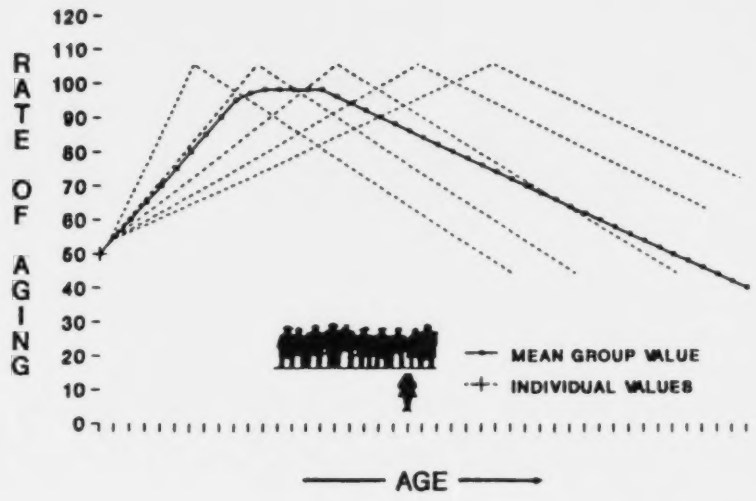


Figure 2. Differences between cross-sectional (solid line) and longitudinal studies (broken lines). Aging is a highly individualistic process, with onset and rate of change in any given parameter dependent on a variety of factors. Note. From "Biological aging and longevity: Underlying mechanisms and potential intervention strategies. by G.T. Baker & G.R. Martin, 1994, Journal of Aging & Physical Activity, 2, p. 304-328.



Physical Activity: A Health Promotion Resource

The body of evidence continues to grow illustrating the positive effects of regular physical activity as a healthy lifestyle behaviour. These positive effects touch all areas of well being, for example, the influence of other lifestyle

behaviours (Blair, Kohl & Brill, 1990); cardiovascular systems, strength, flexibility, cognitive functions, behavioral and emotional health, quality of life (Berger, 1989), self efficacy and possibly the integration of all areas of health (Fitness Canada, 1993; Health & Welfare Canada, 1995). The implications may be even more substantial for older adults, as physical activity is associated with "the restoration and preservation of health", (Berger, 1989; Valbona & Baker, 1984, p.1). The Secretariat for Fitness in the Third Age explains that a much as one half of the decline associated with aging can be attributed to a sedentary lifestyle (Fitness Canada, 1993).

Other authors concur that exercise is an important health activity. "More than good nutrition and adequate sleep, an appropriate level of exercise appears to be the most significant health need for the elderly" (O'Brien & Vertinsky, 1990, p.43). It has been claimed "that there is no single medication that can compete with the range of pathology for which exercise has been prescribed: obesity, depression, diabetes, arthritis, hypertension, coronary heart disease, insomnia, migraine, and smoking cessation" (O'Brien & Burgess, 1992). The evidence abounds that exercise is a viable health promotion tool.

Cardiovascular health or aerobic capacity is often cited as the gold standard in defining fitness. Buchner, Beresford, Larson, LaCroix & Wagner (1992) define aerobic capacity as

"the ability of the body to produce energy by using oxygen. It is the principal measure of the body to do sustained work" (p.470). The most common form of measurement appears to be VO_2 max, which stands for the maximal volume of oxygen consumed per kilogram of body weight per minute. Health & Welfare Canada (1995) claims that aging contributes to a decline in VO_2 max, beginning at approximately age 25, and continuing at a rate of roughly 10% per decade. Several studies concur that the rate of physiological decline is decreased by about 50% by regular physical activity, and that older adults are able to benefit equally to younger adults as a result of exercise (Buchner et al, (1992); Health & Welfare Canada, 1995; Elward & Larson, 1992). Improvements in cardiovascular function as result of exercise are attributable to increased function of both central and peripheral factors.

Exercise and physical activity: Patterns across the Lifespan

Several important national Canadian surveys have provided a clear picture of activity patterns across different age groups. The Canada Fitness Survey (1981) demonstrated a gradual decline in physical activity with age (Fitness Canada, 1983). This was followed up by the Campbell's Survey of Well-Being (1988), which showed the same trends, although a somewhat larger proportion of older adults did report physical activity participation (Stephens & Craig, 1990). These trends show up consistently when examining related areas such as

active sport participation (Hobart, 1975). Patterns of physical activity tend to vary with sociodemographic factors such as education, socioeconomic status, social support and gender, although these relationships are not as clear as the variable of age (Bouchard et al., 1990; Fitness Canada, 1983; Hobart, 1975; Stephens & Craig, 1990;). Some researchers have suggested that the decline in physical activity associated with ageing is due to society's view of the elderly (McPherson, 1986; O'Brien & Conger, 1991; O'Brien & Vertinsky, 1991). In other words, physical activity is viewed predominantly as a young person's domain. For those older adults who remain active, and report regular aerobic activity, the intensity is most often in the low to moderate range which may not provide the maximal benefits possible from physical activity (Stephens & Craig, 1990).

We do not yet know all the variables involved in physical activity participation, but one factor which continues to surface in this area is social support (Edwards & Rootman, 1990; O'Brien-Cousins, 1994; O'Brien & Vertinsky, 1990; Stephens & Craig, 1990). An important form of social support is the physician-patient relationship as identified in national surveys. For example, many of the national surveys (Canada Fitness Survey, Campbell's Survey of Well Being, The Health Promotion Survey) conducted have included physician support as a variable; encouragement by one's primary physician is now thought to be a significant factor in

determining the level of participation in physical activities among the older adult.

Physician-Older Adult Relationship

An important consideration regarding the physician patient relationship is the potential for behaviour change in the realm of physical activity.

> Since the activity levels of Canadians decrease with age, while their use of health care services rises, the physician becomes an important source of influence on activity habits (Fitness Canada, 1983, p.18).

Yet according to reported results in the Canada Fitness Survey, only 35% rated doctor's advice as a reason for being active (Fitness Canada, 1983). This data was not assessed by age categories, which may have presented a clearer picture. Also unknown is the proportion of people who have had a doctor suggest that they become more physically active.

Literature suggests that the elderly have a stronger belief in their doctor's counsel than other age groups (Lewis, 1985; McPherson, 1986; Vertinsky & Auman, 1988), although this is not a universal phenomenon. This maybe particularly true of older women, who make up the bulk of the elderly population. Vertinsky & Auman (1988) state that "women of all ages cite doctor's orders as a more important incentive to exercise than do men and that a doctor's advice becomes increasingly important with age" (p.20). This can be understood in terms of technology increases, and improved

pharmacology and surgery techniques which have evolved throughout the life span of this age cohort. Technical changes are understandably impressive and make matters of health more complex to grasp, increasing the reliance on one's doctor for interpretation.

Physician's Attitudes and Practices in Health Promotion

Several studies have begun to examine the physician's role in health promotion/disease prevention, and the beliefs and practices employed by physicians. The concepts of health promotion and disease prevention include management of risky lifestyle factors, such as smoking, seatbelt use, stress management, lack of exercise, and many others, plus supports for behaviour change. A general consensus exists among the majority of physicians, (88% or more) that health promotion counselling is beneficial for their patients (Price, Desmond, Losh & Krol, 1988; Tapper-Jones, Smail, Pill & Davis, 1990; Valente, Sobal, Muncie, Levine & Antlitz, 1986; Wechsler, Levine, Idelson, Rohman & Taylor, 1983; Williams, Bucks & Whitfield, 1989).

When asked about reducing risk factors to health, smoking cessation was identified by the majority of physicians as the most important health-promoting behaviour. The rest of the health promoting behaviours examined vary both with considered importance by all physicians, and vary between specialty groups of the physicians. For example, while Valente et al.

(1986) reported that 72% of all physicians perceived aerobic exercise to be very important for the average person, only 53% of the physicians regularly gathered information about exercise habits. While all specialties of medicine agreed that exercise behaviour was important, the results varied by specialty; general practitioners/family practitioner 50%, internal medicine practitioners 61%, and obstetric /gynaecologists 40%. A review of studies examining self-reported physician health promotion practices showed differences between physicians. These differences varied with area of specialization, age, gender, place of practice and personal health practices (Maheux, Pineault, & Beland, 1989; Maheux, Pineault, Lambert, Beland & Berthiaume, 1987; Price et al., 1988; Valente et al.,1986).

Price and colleagues (1988) examined physician's health promotion practices specifically regarding elderly patients. Their findings showed that 83% of all surveyed physicians believed that regular exercise was very important for their elderly patients. They also found that 68% of the physicians who thought that their patients were interested in health promotion prescribed exercise, while only 27% of those who thought their patients were not interested in health promotion prescribed exercise. Price's study does not explain how it established which patients were thought to be interested in health promotion.

To sum up the literature, the majority of physicians

believe that exercise, as a health promotion behaviour, is valuable. But those who believe that health promotion is of value do not necessarily practice according to their stated beliefs. There can also be great differences between physicians in terms of which health promotion practices are of highest priority.

Several studies identify at least four barriers faced by physicians in promoting health lifestyle practices and behaviour changes. The professional difficulties cited by physicians include: lack of time (Godin & Shephard, 1990); lack of knowledge (Godin & Shephard, 1990; Maheux et al., 1989); lack of success in behaviour change (Price et al., 1988; Valente et al., 1986) and lack of payment provisions (Godin & Shephard, 1990; Price et al., 1988). One study indicated that physicians made decisions about how they counselled patients by estimating the patient's level of motivation to change (McArtor, Iverson, Benken, Gilchrist, Dennis & Broome, 1992). Thus the factor of physician interpretation of patient attitudes could be considered a barrier to health promotion practices as well as the others mentioned. This is one of the primary barriers which undermine the opportunities for exercise promotion, within the physician-older adult relationship.

CHAPTER III. DESIGN OF THE STUDY

Subjects to be covered in this section include: survey questionnaire design; forms of variables and testing; sample techniques & characteristics; reliability (the pilot study), procedures and results; data collection protocol; coding of variables, and data analysis.

Comparative Groups Design

The research design was a double population survey allowing comparison of two independent groups, Edmonton area physicians and older adults living independently, in the City of Edmonton. The study was conducted in two parts. In part one, seven simple questions examining physician health promotion practices were asked of the two groups independently. In part two, the data was derived strictly from the older adult sample. A dependent variable of energy expenditure (exercise level) was obtained, and the seven physician support questions were explored for predictive ability of the dependent variable.

Part I. The purpose of this section was to determine if differences existed between the two groups regarding perceptions of physicians exercise support and advocacy. The instruments included scales to interpret the following variables: physician encouragement; perceived benefit of exercise, physician lifestyle counselling practices, confidence in physician, physician knowledge of community

programs; physician prescription of exercise; and physician influence on exercise behaviour. Each of these questions, posed to the older adult, had a counterpart question for the physician sample concerning their personal practices and beliefs relative to that variable. The response format was a 5 point likert scale. The two independent groups were then compared via a Mann-Whitney U test for differences in the mean on each ordinal variable (see Figure 3).

Figure 3 Research Variables: Part I.

Older adult reported physician behaviour	Self reported physician behaviour
Physician encouragement of exercise	Encouragement of exercise
Physician lifestyle counselling practices	Lifestyle counselling practices
Confidence in physician prescribing exercise	Confidence in prescribing exercise
Physician knowledge of community exercise programs	Knowledge of community exercise programs
Physician advice to exercise regularly	Advise patients to initiate or maintain exercise
Physician influence on exercise behaviour	Influence on patients exercise behaviours
Older adult perceived benefit of exercise for health	Physician perceived benefit of exercise for health

Part II. Attempts were made to determine if physician support for physical activity, as perceived by the older adult, was predictive of higher levels of physical activity as measured by exercise level (kcal/min). This area of study

examines only the older adults' responses to the survey. A block multiple regression analysis was run to explore the predictive abilities of physician support on late life exercise participation (see Figure 4).

Figure 4 Research Variables: Part II Older Adult Sample.

Dependent variable	Energy Expenditure
Independent variables	Physician encouragement of exercise
	Physician lifestyle counselling practices
	Confidence in Physician prescribing exercise
	Physician knowledge of community exercise program
	Physician advice to exercise regularly.
	Physician influence on exercise behaviour
	Perceived benefit of exercise

Survey Questionnaire Design

The construction of the questionnaire was guided by information described in Fink & Kosecoff, (1985). Two forms of the questionnaire were developed: one for physicians and one for older adults. The older adult questionnaire was written in language deemed more appropriate for an older audience, such as the use of lay language phrases, rather than

the more clinical terminology of the physician questionnaire. For example, pertaining to the question ranking the barriers to health promotion, older adults were given a response of "too ill to exercise", while the physicians question had health broken into four areas of health. Each form of the questionnaire was introduced by a cover letter, including the title of the study, a brief explanation of the study, and an area for an address if respondents wish to receive the results of the study. Appendix A contains both forms of the questionnaires, including the cover letters. The study proposal was submitted and passed by the Human Ethics Review board of the University of Alberta (see Appendix B).

Physician Questionnaire

The physician survey consists of twenty-one questions of which two were open ended for input from the sample regarding the role of the physician in promotion of exercise and health in general. Demographic questions include: sex, age, and year graduated from medical school. These questions were used as descriptive devices to illustrate sample characteristics.

The physician survey also included the following topics: area of medicine, training in exercise prescription, patient population age, population suitability for exercise promotion, subjective health, activity frequency in past four months and activity level. These variables were employed in the physician sample questionnaire in order to gather information

which could potentially explain certain outcomes. For example, if physicians do not believe that older adults are a suitable population for lifestyle counselling, then they are not likely to prescribe exercise to them. If physician do not often see older adults as part of their clientele, then opinions about prescribing exercise to them may be unclear. It then becomes important to know what percentage of the physician regularly see older adults. Other background variables relate to physician activity practices and self rated health. It is possible that the more active a physician, the more likely he/she may be to prescribe exercise to the patients in their care.

The literary review found physician health promotion practices were affected by factors such as area of medicine, medical school attended, age, and sex. As a result of previous information, attempts were made here to gather as much information as possible on background variables. This decision may also facilitate future analysis of the obtained data relating to other questions which are outside the scope of this study.

Two other questions not yet addressed asked physicians to rank order variables according to their beliefs. The first question asked for the ranking of seven known healthy behaviours: regular exercise, balanced diet, limited stress, adequate sleep, social support, limited alcohol use, and not smoking. This question addresses the value of exercise for

positive health enhancement as compared to other lifestyle healthy choices, as mentioned above.

The second question pertained to the barriers which physicians face in promoting exercise. The barriers listed in this question were drawn from barriers listed in current literature (Coulter & Schofield, 1991; Godin & Shephard, 1990; Price et al., 1988; Maheux et al., 1989; Maheux et al., 1987; Vertinsky & Auman, 1988; Wechsler et al., 1983), as well as, from consultation with Dr. Peter McCracken who is head of the Caritis Group Geriatrics Division, in Edmonton, Alberta.

In order to compare data across studies, whenever possible, the exact wording of the questions were drawn from other surveys, such as the Canada Fitness Survey, the General Health Survey, and a doctoral dissertation, "The determinants of exercise in women over the age of 70" (O'Brien Cousins, 1993). Questions which came from other studies include: age, education, number of medications (objective health), self-rated health status (subjective health), lifespan physical activity pattern, and activity level in past four months.

The other seven questions included in the physician survey pertained to beliefs and practices of exercise promotion within their patient populations. They include: encouragement of regular exercise, advice to exercise, counsel on other lifestyle behaviours, knowledge of community exercise programs for older adults, confidence in exercise prescription, benefits of regular exercise, ability to

influence patient's exercise behaviour. This group of variables are referred to as the physician support variables which are used for analysis in part I of this survey. A five point likert scale was chosen ranging from 1 to 5 for indicating agreement or disagreement with belief statements regarding physician support.

Older Adult Questionnaire

The older adult questionnaire was slightly different and longer with the added assessment of weekly activity level. The Older Adult Exercise Status Inventory (O'Brien-Cousins, in press), will be explained further on in this section. Questions which were similar to the physician form were: age, sex, education, objective health, subjective health, and open ended perspective questions on the doctor's role. Other topics included: primary motivation for exercise participation, number of doctor visits per year, life course activity patterns, lifestyle habits, marital status, and perceived barriers of physicians to promote exercise.

The same seven physician support variable questions were used on the older adult questionnaire form: encouragement, advice, lifestyle counselling, knowledge of community programs, benefits of exercise, influence, and confidence in physician's prescription of exercise. An additional question on trust in physician counsel was added for interpretive reasons, as it was hypothesized that if one did not trust

their physicians advice, then they were not likely to exercise on their physicians advice. The wording and use of the likert scale response was consistent between the two forms of questionnaire so that comparisons could be made between the two group responses.

Measurement of the Dependent Variable

In the study design part II, the dependent variable of older adult activity level was measured. There is currently no single gold standard measure of physical activity level. Many types of activity measurement have been examined and compared. Self-reported weekly physical activity has been found to be suitable for this type of inquiry; the seven day recall method of leisure-time activity has been useful with older adults (O'Brien-Cousins, 1993). Previously reported validity includes predictive or criterion, concurrent, and construct validity support (O'Brien-Cousins, in press). Cronbach states, "Construct validity is established through a long-continued interplay between observation, reasoning, and imagination" (1970, p.142).

While this instrument (OA-ESI) is currently being used in other research, the use and improvement is ongoing. For example, a recent addition to the instrument was inclusion of domestic work energy expenditure, (copy in questionnaire, Appendix A). For purposes of this study, only the leisure time weekly reported activity was used due to available

reports of reliability. As the majority of the older adult population consists of independent living females, recent changes may more accurately reflect totals in energy expenditure in a week. Thus it is unclear if a more accurate assessment of activity relating to physician support is leisure time, or daily living tasks, or a composite score. The continued use of this tool will lead to further refinement.

The reliability of an instrument is defined as,

> The degree to which the procedure yields about the same numerical score each time and in each way we measure an individual with it is reliability. The more consistent, dependable, precise, and stable the numerical scores are, based on several readings of a particular individual, the greater is the reliability of the measurement procedure."
> (Smith & Glass,1987,p.99)

Reliability and validity regarding the OAESI is reported in detail in O'Brien Cousins (in press). The categories of activity intensity were examined to test the reliability coefficients over a two week test-retest format. The categories were 'mildcal'(<4 METs); 'modcal' (4-5.9 METs); and 'vigcal' (6+ METs). A MET unit denotes the intensity of the activity compared to the energy expended when sitting at rest. Total weekly kilocalories for each intensity category, allowed a comparison to be made between the same individual's response at two different time periods. The result of the reliability test in O'Brien Cousins, (in press), were reported as 'mildcal' r=.114; n.s.; 'modcal' r=.756; p<.001; and 'vigcal'

r=.505; p<.05. The reliability coefficients for this study are reported in the section describing the pilot study (below).

For the present study "activity level" was self-reported. As a dependent variable, activity level was an estimate of energy expenditure, in kilocalories, over a seven day period, as reported in minutes per day X activity intensity (MET). The variable of energy expenditure was then standardized along with the other variables, for use in the multiple regression analysis.

Older Adult Pilot Study

The survey instrument was piloted with two sample groups representing the two populations. The Older adult volunteers were attained through two exercise classes at the University of Alberta, Project Alive and Well, n=17.

The questionnaires for each sample were piloted with a two week test-retest format. The data were coded and reliability coefficients calculated using SPSS for WINDOWS. The variables were assessed using the Pearson Product Moment correlation coefficients, and the r values can be found in Table 1. The goal for this study was to obtain correlation coefficients at .600, p<.05 or higher for inclusion in the questionnaire. Questions which had lower coefficient values were reexamined for incorrect data entry and unclear wording. No questions were dropped, but four were inspected and changed

for clarity to facilitate comparisons. Three items which had values between r=.5 and r=.6, p<.05, in the older adult sample were kept due to the high values attained by the physician sample on the same variable (r=.9 to r=1.0, p<.05).

Table 1

Reliability coefficients of variables

OLDER ADULT SAMPLE N=17

Variable	Pearson r value	p value
Advice	.9231	.000
Age	1.00	.000
Confidence	.5906	.034
DR. visits/year	.8732	.000
Education	.9606	.000
Encouragement	.5193	.039
Energy Expenditure	.7668	.000
Influence	.3274	.275
Knowledge	.7785	.002
Life experience	.5624	.023
Lifestyle	.8924	.000
Marital status	1.00	.000
Objective health	.8720	.000
Past 4 months	.8162	.000
Perceived benefit	.5375	.032
sex	1.00	.000
self rated health	.6322	.009

Physician Pilot Study

The physician pilot sample variables were also tested for reliability. The physician sample consisted of 4 doctors from the Glen Sather Sports Medicine Clinic at the University of

Alberta, and 4 doctors from Family Medicine at the Grey Nuns Hospital in Edmonton. The results can be seen in Table 2. Several variables did not reach significance in the pilot sample, however, this was an extremely small sample, and visual inspection of the results displayed low numerical differences between test retest values. One variable demonstrated instability, this was physician's perceived influence on patient's exercise behaviours. In both samples the r values were very low (below r=.3), meaning that the respondents belief about their influence on patient exercise behaviours was not a stable trait. Clearly, how a physician perceives their influence over a patient may vary from situation to situation, and from day to day. Obviously the amount of influence they feel they have at a given point in time would be susceptible to daily fluctuations.

Table 2

Reliability coefficients of variables

PHYSICIAN SAMPLE N=8

Variables	Pearson r value	p value
Padvice	.3078	.458
Page	.9940	.000
Psuitable popn	-.2582	.537
Pconfidence	.8767	.004
Pencouragement	.9078	.002
Pinfluence	.2928	.482
Pknowledge	.8868	.003
Plife experience	1.00	.000
Plifestyle	.6000	.116
Ppast 4 months	1.000	.000
Ppatient popn	.9175	.001
Pperceived benefit	1.000	.000
Psex	1.000	.000
Pself rated health	.5898	.124

Older Adult Sample

The older adults who completed and returned the questionnaire were a self-selected volunteer sample of seniors attending Spring Session for Seniors at the University of Alberta. Due to a lack of accessible random lists of older adults, a volunteer sample was recognized as the only alternative for this work. As with any convenience sample,

certain bias are built in to the responses. This sample was chosen in large part due to the number of accessible seniors, while recognizing that this sample would likely have higher levels of education than the general population. It was anticipated that with a large enough N value, variability would be good enough to provide adequate statistical power.

There were approximately three hundred and fifty people in attendance at the 1994 spring session for seniors, of those, 121, completed and returned questionnaires. This was accomplished by personal visitation with each class. A brief explanation was given and "how to" instructions, followed by a reminder for returning a complete questionnaire. Several personal re-appearances facilitated collection of the questionnaires. A comparison of this sample and demographics of the general population will be made, where possible, in the discussion section.

Physician Sample

The physicians who filled out questionnaires were members of the College of Physicians and Surgeons of Alberta. A list of 1763 doctors was obtained from this board, and from this, a list of two hundred doctors was generated randomly. Randomization was accomplished using a table of random numbers. Physicians were then contacted to determine whether or not they saw a patient population on a regular basis. Those that did not were excluded, and replacement subjects

were selected randomly. Questionnaires were sent by mail with a self addressed envelope to each doctor on the list. A period of one month was given for response, and those doctors who had not responded were given a follow up phone call to encourage them to submit a completed questionnaire. Response rates will be discussed in the results section.

Data Analysis

A data base was created with SPSS 6.1/Windows 3.1 statistics program. The raw data was visually inspected several times for errors. Further examination of the data occurred when checking the descriptive statistics such as mean, range, number of cases, and skewness. The skewness of the variables was further explored by creating histograms compared to normal distribution curves.

Each variable was then standardized (z scores). Correlation were run for all variables to explore relationship possibilities. Two types of analysis were conducted representing the two parts of the study. In part I, comparison of seven physician support variables between independent groups was required. The Mann-Whitney U test was used for this section, due to the ordinal form of the data. In part II, a multiple regression was run to determine whether any of the seven physician support variables were predictive of higher levels of activity, within only the older adult sample. Since the correlations between the dependent and

independent variables demonstrated poor results, the variables used in the multiple regression were $\log_{\text{base}(10)}$ in attempts to improve the obtained result.

CHAPTER IV. RESULTS

Subjects

As with many studies, the sample sizes are often not as large as one would like. In terms of response rates, the older adult sample exceeded the physician sample. The older adults were in a socially contained and supportive environment, and out of the 177 surveys that were accepted by seniors, 121 were completed and returned, giving a 68% response rate. The physicians were not as responsive. While 200 surveys were mailed out only 86 people responded in some form. Of these 86 doctors, 14 had moved with no forwarding address; 1 returned the questionnaire with a response of 'no time to fill out'; 3 declined due to application of patient population, ie. palliative care; and 4 doctors had retired. The final tally was a response rate of 94 questionnaires returned (only 64 in usable form), out of 200 doctors giving a response rate of 94/200 = 47%.

There was some contamination between groups, for example, some of the physicians would qualify as older adults and vice versa. Several physicians who were retired declined to fill out the physician questionnaire on that basis. Alternately, some older adults sample subjects declined to do the questionnaire as a member of that group. It was not possible to tell if they were in the random sample of physicians. Whether or not this overlap in group members is significant is difficult to ascertain.

Older Adults Subject Characteristics

The age of the older adult sample, ranged from 57 years to 87 years, and the mean age was 69.3 years; standard deviation of 6.62 years. Of worthy mention is a gap in subjects between and including age 81-83 years. The gender distribution was 78% female and the remaining 22% were males, or 3.5 women to one man. The predominant level of education was some college or university ranging from grade 8 to post graduate degree. The majority of these respondents (75%) had some university or a post secondary degree. Almost one half (46%) of the respondents were married, and another 46% were single now, but previously married, while only 8% of this sample population were never married.

Other sample characteristics include self reported health, of which the majority of respondents judged as good. On a five point scale from very poor to very good, the mean report level was good health, with a standard deviation of .76. In general consensus with that variable was the measure of objective health which is the number of prescription medications one takes. Within a range of 0-6, the mean number of medications being taken is 1.4, with a standard deviation of 1.45. Stated another way, 65% of the respondents were taking one or no prescription medications, which is thought to be indicative of better health. Only 13% were taking 2 prescriptions, and less than 10% were taking any number between 3 to 6 medication inclusively.

Two variables which pertained to the respondents physician relationship were the number of doctors visits a year, and whether or not they trusted their physicians council on health matters. The doctor visits per year variable had categories of: once a year or less; four or less times a year; ten or less times a year; and more than ten times and year. Of the respondents 85% answered that they saw their physician 4 or less times a year. In fact many older adults made an extra written note that they rarely saw the doctor.

The response obtained on the trust variable was overwhelmingly positive. Less than 12% of respondents reported negative feelings of trust, while 88% selected positive responses. While the majority of respondents reported they trust their physicians, they also reported that a doctor was not the most influential person who encouraged their exercise patterns. A large group of 90% of this sample stated that their own incentive was the influence which made them active. The responses given by the remaining 10% of respondents were, in descending order are: spouse (5%), family (3%), friends (2%), and doctor (1%).

Physician Subject Characteristics

The physicians ranged in age from 27 to 72 years of age with a mean of 48 years old. An interesting note with this age spread of physicians, is that 37% of these physicians would be older adults themselves. The gender ratio for

physicians was 25% female and 75% males. An overwhelming number of the physician sample (91%) believed that older people are a suitable population to counsel on lifestyle change such as smoking cessation, regular exercise, stress reduction, or nutritional practices. By having physicians list their area of medicine, and then dummy coding into two categories of, likely to see older people = 1, and not likely to see older people = 0, it was determined that 62% of this sample were likely to have older adults in their clientele. Those physicians not likely to see older adults include such specialties as paediatrics or laboratory medicine.

A question pertaining to the percentage of older adults in the physician's clientele was used. The median response of physicians was that 20-40% of their patients were older people, with a prominent range between 0% to 60%, and only 5% responded that 60% or more of their patients were in the older adult population.

Of the physicians surveyed, it was deemed appropriate to determine their physical activity tendencies by examining their lifespan participation, and recent history of physical activity. In terms of lifespan activity 83% responded that they were 'intermittently active' or always been active. Correspondingly, in the past four months, 58% of physicians stated that they participated in vigorous exercise two or more times a week, and 23% said once a week. The other 19% exercised less than 2-3 times a month. Overall these results

are indicative of a physical activity conscious group of physicians.

TABLE 3

Range, Mean, Standard deviation, # of cases, & Skewness of variables.

Variable	Min/Max	Mean	Std.Dev.	# cases	Skew
Advice	1-5	2.35	1.4	104	.465
Padvice	1-5	2.6	1.3	59	.322
Age	57-87	69	6.6	118	.393
Page	27-72	48	12.2	62	.383
Confiden	1-5	3.1	1.2	107	-.168
Pconfiden	1-5	3.2	1.1	61	-.510
Drvis	1-4	1.7	.793	119	.974
Education	1-7	5.2	1.3	120	-.675
Encourag	1-5	2.7	1.5	107	.016
Pencour	1-5	4.0	1.1	61	-1.32
engexp	0-4530	1937	1182	93	.132
Influn	1-5	2.8	1.2	112	-.079
Pinflun	1-5	3.7	.88	61	-.580
Knowl	1-5	1.7	1.0	106	1.3
Pknowl	1-5	2.9	1.1	62	-.051
Lifest	1-5	2.9	3.1	111	.229
Plifest	1-5	4.2	.96	64	-1.5
Lifex	1-5	4.0	1.1	120	-1.5
Plifex	1-5	4.1	1.0	64	-1.5
Marst	0-2	1.4	.61	120	-.497

Table 3 continued.

Objheal	0-6	1.4	1.4	117	1.2
Percben	2-5	4.6	.54	115	-1.7
Ppercben	4-5	4.8	.4	63	-1.7
Popnben	3-5	4.3	.63	63	-.418
Ppas4mo	1-6	4.9	1.4	64	-1.4
Pt4mon	1-6	4.6	1.8	118	-1.2
Ppopn	1-5	1.9	1.0	62	.967
Sex	1-2	1.8	.41	120	-1.4
Psex	1-2	1.2	.43	63	1.1
Srheal	1-5	4.1	.75	118	-.897
Psrheal	1-5	4.2	.74	63	-1.4
Trust	1-5	4.0	.71	114	-1.1

Life Span Activity and Energy Expenditure of Older Adults

Three questions asked of older adults were used to determine lifespan activity trends and current energy expenditure. Pertaining to life span activity patterns, the response categories include: 'never been much involved in physical fitness activity'(7%); 'previously active, but not any more'(2.5%); 'active just recently'(6%); 'intermittently active'(43%); and 'always been involved in physical fitness activity'(41%). In this sample, the vast majority fall into two categories of intermittently active (43%), and always been involved in physical fitness activity (41%). Although intermittently active may not be enough to sustain health,

almost half of this sample were active now (47%), and most of those have always been active.

A second question asked, pertains to activity frequency in the past 4 months, in activity which is vigorous enough to make one sweat. Again results indicated an active group of older adults. Over half (52%) participate in vigourous exercise two times a week or more, while only 13% stated that they did not participate at all. The remaining 35% fell somewhere in between the two extremes.

Energy expenditure is measured in kilocalories of energy used in one week. The range of responses was from 0 to 7500 kilocalories, with a mean response of 2152 kcal, and a standard deviation of 1560. These results are skewed compared to a normal distribution curve, as 5 of the 97 respondents reported 7000-7500 kilocalories of energy expended, and no respondents were in the range of 6500-7000 kilocalories. Therefore if these outliers are excluded from the results, the mean number of kilocalories expended is significantly reduced to 1937 kcal which displays a less active group.

Another concern which affected the data, is whether or not the 24 persons who did not respond to this question are indicating that they did not exercise at all, or where they might have fit in this distribution. If, for example, they did not respond because in fact they did not exercise, then the mean energy expenditure variable is again reduced.

According to the responses on the other questions pertaining to levels of exercise, it would appear that the non-respondent on this question were performing some level of exercise in the past week. The reported mean of 1937 kcal (s.d. 1182) excluding the outliers, indicates that this group, in general, are exercising close to levels which are health enhancing. Thus, the sample is representative of the active older adult population.

Correlations

The Spearman correlation coefficient was run for all older adult ordinal variables with a set significance level of $p<.05$. Results indicate that strong positive associations exist between the physician support variables. The correlations range from $r=.3802$, $p<.000$, between influence and trust to $r=.8033$, $p<.000$, between advice and encouragement. A complete list of the correlations can be found in Table 4.

In the older adult group, no associations were found between background variables, such as age and energy expenditure, or education and energy expenditure. In fact the strongest associations with energy expenditure were found with lifespan activity $r=.2009$, $p<.025$; and exercise frequency in the past four months $r=.3007$, $p<.002$. Consistent with this finding is the association between lifespan activity and past four months which is $r=.3639$, $p<.000$.

Other associations which were significant were doctor

visits per year with objective health (r=.4291, p<.000); self rated health (r= -.4187, p<.000); and between self rated health and objective health (r= -.3889, p<.000). These associations demonstrate the interrelationship between these variables. For example, the more medications older adults reported taking, the lower they tended to rate their health, and the more often they reported seeing a physician. One last noted association between variables is lifespan activity with self rated health (r=.3827, p=.000), suggesting that those who report being active over the lifespan currently tend to rate their health as higher. See table 4 for a complete list of correlations.

TABLE 4

Spearman Correlation Coefficients of Older Adult Variables

Correlation Matrix r=1st value, p=2nd value.

age	-.0006 p=.497					
confid	.5215 .000	.0101 .459				
drvis	.1386 .081	-.0005 .498	.2058 .017			
educ	-.0245 .403	-.1684 .034	.0627 .261	.0359 .350		
encour	.8033 .000	.0073 .471	.5215 .000	.1673 .043	.0964 .163	
engexp	-.0568 .301	-.0878 .199	.0090 .467	-.0831 .212	-.0121 .453	.0292 .393
influn	.6550 .000	.0119 .451	.6807 .000	.2431 .005	-.0249 .398	.6014 .000
knowl	.4768 .000	.1266 .101	.3828 .000	.1379 .080	.0440 .328	.4684 .000
lifest	.6358 .000	-.0911 .174	.4955 .000	-.1961 .020	-.0514 .297	.6297 .000
lifex	-.0593 .276	-.1378 .068	.0579 .278	-.1733 .030	-.0017 .493	.0745 .224
	advic	age	confid	drvis	educ	encour

continued on next page

Table 4 continued

marst	-.0497 .309	-.2722 .001	.0020 .492	-.1755 .029	.1928 .018	-.0394 .344
objhea	.0691 .246	.1221 .096	.1923 .025	.4291 .000	.0754 .210	.1882 .028
percb	-.0463 .321	.0541 .285	.0876 .185	.0185 .423	.0977 .151	-.0972 .161
ptmon	.0552 .291	-.3641 .000	.0609 .269	-.2043 .014	-.0042 .482	.1102 .133
sex	-.0088 .465	-.0247 .395	.0095 .462	.0479 .303	-.0102 .456	.0443 .326
srhea	-.1263 .103	.0226 .405	-.0712 .236	-.4187 .000	.0218 .408	-.0877 .187
trust	.1773 .037	.0972 .155	.3973 .000	.1001 .146	.1406 .069	.1947 .023
	advice	age	confid	drvis	educ	encour

lifest	-.1280 .115	.5431 .000	.3489 .000			
lifex	.2009 .025	.0188 .422	.0144 .442	.1489 .060		
marst	.1457 .078	-.0687 .237	.1243 .103	-.0362 .353	.0170 .427	
objhea	-.1551 .067	.1838 .028	.1929 .025	.0852 .192	-.1318 .078	.0014 .494
percb	.0145 .445	.0891 .176	-.1079 .137	-.0526 .293	.0835 .188	.0453 .316
ptmon	.3007 .002	.0531 .291	.0299 .382	-.0303 .378	.3639 .000	.1175 .103
sex	-.1620 .057	-.1681 .039	-.0557 .286	-.0090 .463	.1850 .022	-.1413 .063
srhea	.0842 .209	-.2187 .011	-.1505 .064	-.1213 .104	.3827 .000	-.0238 .399
trust	.0109 .459	.3802 .000	.2162 .013	.2770 .002	-.0269 .389	.0856 .184
	engexp	influn	knowl	lifest	lifex	marst

continued on next page

Table 4 continued.

percb	-.1371 .076					
ptmon	-.1915 .021	.0464 .313				
sex	.1887 .021	-.0499 .299	.0442 .318			
srhea	-.3889 .000	.2716 .002	.2300 .007	.2385 .005		
trust	.0991 .151	.1420 .067	-.0608 .263	-.1112 .121	.0497 .302	
	objhea	percb	ptmon	sex	srhea	

Mann-Whitney U Test for Comparison of Beliefs Between Groups

One of the primary goals of this study was to determine whether or not older adults and physicians, as independent groups, reported differences in physician's support of exercise. To test the hypothesis that the reported physician behaviour differed between groups, Mann Whitney U tests were run comparing the means of the seven support variables for each sample (see figure 3 for variables). Two tailed tests were used with p value of $<.05$.

The results show that four of the seven variables have significant differences between groups (Table 5). The four variables which demonstrated significant differences between older adults and physicians were: physician influence on exercise behaviour, physician knowledge of community exercise

programs, physician lifestyle counselling practices, and physician encouragement of exercise. Although the significance level of all four variables is $p<.0000$, interpreted in z scores, the influence variable demonstrated the least amount of difference between groups, with a z score of -4.3548, compared to the other variables which were larger than -6.1045 or more.

Older adults and physicians were in agreement that: 'regular exercise can positively effect one's level of health' and were 'confident in the physician's ability to prescribe exercise'. Regarding confidence in physician's ability to prescribe exercise, respondents in each group were similar in the distribution of responses in each category.

Judging by the response distribution of the variables being compared, the issue of physician influence differs between groups in that 50% of physicians stated that they could influence their patients exercise behaviour, while only 31% of older adults chose that response. Many more older adults responded that they either disagreed with or were not sure of their physician's influence on exercise behaviour. The variable of physician knowledge of community programs differed in distribution by group response. The physicians illustrate a bimodal distribution with approximately one third agreeing, and one third disagreeing with having a good knowledge of community exercise programs. The older adults overwhelmingly stated that they strongly disagreed with the

physician having a good knowledge of community exercise programs.

The differences between groups pertaining to the variable of lifestyle counselling, are again illustrated by the distributions. While older adults are more evenly distributed across the different response categories, the physicians tend to report (84%) that they often or very often counsel patients on lifestyle factors other than exercise. The variable of physician encouragement of exercise illustrates the same patterns as that of lifestyle counselling. The physicians stated that they often (36%) or very often (46%) encouraged patients to exercise, while older adults respond that they receive encouragement to exercise from a physician sometimes (28%), and never (29%), demonstrating significant differences between the two groups.

Essentially, the differences and similarities between the two groups regarding the seven independent variables implicate problem areas which may serve to maximize the potential role of the patient physician relationship in exercise advocacy.

Table 5

Mann Whitney U test results (two tailed p).

Variable	Mean rank	Cases	Group	Z score	p value
Advice	77.94	104	1	-1.5137	.1301
	89.15	59	2		
Confiden	82.22	107	1	- .8306	.4062
	88.50	61	2		
Encourag	67.11	106	1	-6.1045	.0000
	113.35	61	2		
Influen	75.20	112	1	-4.3548	.0000
	108.66	61	2		
Knowled	65.79	106	1	-6.8398	.0000
	116.49	62	2		
Lifest	67.00	111	1	-7.1097	.0000
	121.98	61	2		
Percben	85.32	115	1	-1.9260	.0541
	97.13	63	2		

Predictive Ability of Physician Support on Energy Expenditure

Initially a backwards stepwise multiple regression was run to explore which variables, if any, could account for significant variability of the criterion variable. Previous findings (Fitness Canada, 1983) which indicate that age and/or education have a linear relationship with energy expenditure, were not evident here. The last variable remaining in the regression was past four months, a measure of frequency of activity in the past four months, yet it only accounted for 8% of the variance in this sample, p=.01; F=6.4205. (See Table 6).

The independent variables of physician support were adjusted by log base 10, to account for the skewed distributions, and entered in a block regression to view the variance of the group of variables. This analysis did not find any significant accountable variance. In this study, physician advocacy of older adults exercising has no predictive ability for their levels of leisure time energy expenditure. Possible explanations for this will be addressed in the discussion.

TABLE 6

Multiple regression analysis of predictive ability of physician support on energy expenditure.

Multiple regression 1

Variable	R square	F ratio	significant F
Education	.21	0.00	n.s.
Life exper	.21	0.00	n.s.
Dr Visits	.21	0.00	n.s.
Trust	.21	0.00	n.s.
Influence	.21	0.00	n.s.
Lifestyle	.21	0.00	n.s.
Confidence	.21	0.00	n.s.
Knowledge	.20	0.00	n.s.
Object health	.19	0.00	n.s.
Advice	.18	0.00	n.s.
Encourage	.18	2.16	.05
Perceive benefit	.16	2.47	.03
Marital status	.14	2.65	.03
Age	.12	2.87	.03
Self rate health	.10	3.25	.02
Sex	.08	4.06	.02
Past 4 months	.08	6.42	.01
Multiple Regression 2			
Block Independent	.02	.2938	n.s.

Significant F is the alpha level of the F ratio, indicating the probability of error in the ratio figure. (Gravetter & Wallnau, 1995).

Comparison of Ranked Health Promoting Variables

Exercise is one of several lifestyle behaviours considered to be health promoting. In an attempt to determine beliefs surrounding health promoting behaviours both groups were asked to respond to identical questions ranking seven health promoting factors by their ability to positively affect one's level of health. The sharpest contrast in the rankings of these factors occurred in the number one ranked factor between the groups. The physician sample overwhelmingly chose 'not smoking' as the number one factor positively affecting one's level of health. The older adult sample chose 'nutrition' as the most important health promoting behaviour. In both groups, 'exercise' was considered relatively important, ranked as second by the older adults and third by the physicians, and 'social support' was considered the least important for health promoting behaviours.

Among the older adult group, exercise was ranked number one by 17%, number two by 30%, number 3 by 25%, number four by 16%, and number 5 or lower by less than 5%. The physician group differed slightly as only 9% ranked exercise as number 1, 29% as number 2, 28% as number 3, 8% as number 4, 16% as number 5, and less than 6% as number 6 or 7. The rankings are set up with number one ranking as the greatest ability to positively effect level of health. Figure 5 illustrates the relative rankings of all factors by sample group.

Figure 5

Comparison of ranked health enhancing variables between two groups (descending order).

Physician rank order	Older adult rank order
Not smoking	Nutrition
Nutrition	Exercise
Exercise	Adequate sleep
Limiting alcohol	Not smoking
Reduced stress	Reduced stress
Adequate sleep	Limiting alcohol
Social support	Social support

Barriers to Exercise Advocacy

A question was posed to each group which investigated beliefs about common barriers which undermine a physician's ability to practice exercise promotion. The older adult sample indicated which of four categories they believed were barriers for their physicians (Figure 6). These categories included: not enough time per visit; not within a doctor's field of expertise; patients too ill to exercise; and other (open response). Of the older adult respondents, 58% stated that time per visit was a barrier for their doctors prescribing exercise to them, and 46% responded that it was not within a doctor's field of expertise. Only 16% indicated that a barrier was the illness level of the patient, In open-ended answers to "other" difficulties in physician exercise prescription were such things as; "doctors treat medical

problems not prevent them"; "the number of patient visits in a year discourages exercise prescription and follow up"; and "lack of knowledge about patients lifestyle and personal habits and behaviours". Other comments resulting from this question to older adults can be found in Figure 7.

Figure 6

Ranked barriers to exercise promotion (descending order).

Physician ranked barriers	Older adult ranked barriers
Compliance	Time per visit
Time constraints	Not in Dr.'s field
System constraints	Patients too ill
Medical constraints	Other (see figure 7)
Functional constraints	
Mental constraints	
Psychosocial constraints	
Knowledge constraints	
Legal coverage	

Figure 7

Older adults open communication of physician barriers to promoting exercise.

-Dr.'s are trained to treat medical problems, not prevent them.

-prescribing exercise would lose patients and dollars.

-they would rather prescribe pills than exercise.

-they usually address specific reasons for the visit, and exercise is not within that scope.

-Dr. may believe the patient is healthy for age, and so doesn't believe it necessary to discuss exercise.

-follow up and compliance are difficult for the Dr. to assess.

-may lack of knowledge of patient lifestyle and behaviours to prescribe exercise.

-no need for Dr. to prescribe exercise, the responsibility for health lies with the individual.

-limited training for Dr.'s in preventive medicine and exercise prescription.

-rarely see the Dr. so this kind of prescription is inappropriate.

-patient attitudes.

-patients looking for quick fix, and are not content unless they leave visit with a pharmaceutical prescription.

The question asked of the physician sample included ranking nine categories of barriers. These included: time constraints, knowledge constraints, compliance level of patients, system constraints (i.e., billing), legal coverage, medical health constraints, psychosocial health constraints, mental health constraints, and functional health constraints (i.e., aids to daily living). The responses indicated that in ascending order (percentage giving ranked position), the number one ranked barrier to exercise prescription was compliance (45% as number 1), time (36% as number 2), system (23% as number 4), medical health (22% as number 5), functional health (22%), mental health (20%), psychosocial health (20%), knowledge (21%), and last was legal coverage (56% rated this as number 9) concerns.

Other comments offered by the physicians regarding barriers in exercise prescription include: "exercise programs which may increase compliance levels are often a fee for service set up, of which the needy elderly can least afford to pay; lack of consistent visits to reinforce behaviour change"; and that "the elderly find it more difficult to change habits". A common theme in the general comments made by the physician sample regarding exercise prescription was that there needs to be a change in societal priorities. The physicians stated that the government and their health policies do not support preventive initiatives;, thus the general public that receive cues from their doctor, may also

remain in the confines of traditional medicine. The effect of this feedback loop is a continuous circle which serves to restrict health care to the traditional diagnosis and treatment form.

Open Communication of Physicians Role in Exercise Advocacy

Each respondent (both groups) were asked an open ended question about the role they believed the physician should have in promoting physical activity. These comments were not used for any statistical analysis, rather, they are meant to enhance the understanding of potential roles for the physician in exercise advocacy. A complete list of these comments can be viewed in Figure 8 and 9.

Of interest from the qualitative data, were the predominant responses for each group. The older adults anchored the most responses at each end of a spectrum. The most common answers were that a physician has a prime role in promoting exercise, and that a physician has no role in exercise promotion. To further clarify this result, although the numbers of person in each of the extreme response categories was relatively equal, overall 36 of the older adult responses to physician's role in promoting exercise were positive, while 62 of the responses were negative.

An example of common positive responses was "a doctor should provide encouragement and suggestions for exercise"; and, "he/she should link illness and wellness (exercise or

lack of) to all patients". On the less positive side, comments that emerged include: "a doctor should promote exercise if it will help a medical condition, and if I'm well, I should promote it myself"; "I think my doctor knows I'm active so it is not discussed"; and, " doctors are into treating medical problems not preventing them". Overall, between the opposing views of a prime role for physician's promoting exercise, and no role, among the older adult group, lies predominantly negative images of physician's practising exercise promotion.

The physician group held more of a consensus of positive roles for physicians in exercise promotion. The answers favoured a positive role by 36 to 5 (negative answers). The most common response by physicians was a role of "counselling and strong encouragement". The negative responses referred to poor compliance among the elderly, and doctors not being prepared to specifically prescribe exercise. For example, negative statements include: "older adults find it difficult to change"; and "limited impact unless people want to change". The positive voices brought up some valid points. For example, "an important role because of trust and often we are the first to tell them they are unfit". Some of these comments indicate that physician's feel that they play a part but do not expect to do it all themselves. An illustration of this point comes from the following comment. "A doctor plays a positive role in prescription and then referral to experts,

and reinforcement for exercises". One last refreshing view coming from the open communication of physicians is, a physician's role in promoting exercise among older adults is "vital to encourage an increase in activity and a decrease in medication use". A complete list of physician comments is found in Figure 9.

Figure 8

Open communication of older adults on physician's role in exercise promotion

* indicates another subject who gave the same response.

Question: What influence, if any, do you believe your doctor has, or should have in promoting exercise?

-doctors could be very influential due to the respect given them by their patients.*

-prime influence.********

-he/she should link illness and wellness (exercise or lack or) to all patients.**

-every patient should be given a sheet of exercises suitable for the individuals needs and medical conditions.*

-I have a cholesterol problem and my doctor convinced me that exercise would help.

-very important role since the Dr. knows history and lifestyle of patients the best. Prevention is better than disease treatment and is long overdue.*

Figure 8 continued.

-should place more emphasis on the value of exercise for seniors, physical and mental stimulation are essential to slow down the aging process.

-could have influence by talking about it in detail.****

-it is not up to him/her, self motivation for health and exercise is important.**

-doctor should provide encouragement and suggestions for exercise.********

-doctor should be highly informed on the value of exercise.*

-I consult my doctor before starting a new exercise because of arthritis in my knees.

-he/she has little influence on me because I am self motivated. There is not enough preventative medicine. My doctor recommends exercise but does not have the expertise to prescribe it.

-My doctor has never mentioned exercise to me.

-none.*********

-a doctor should promote exercise but I very seldom see mine and believe in exercise myself.**

-my doctor has never offered advice. I think encouragement would be helpful, and it would help us to function longer on our own.*

-none. I don't have a family doctor and am in good health.***

Figure 8 continued.

-the public get exercise information from the media, Dr.'s have limited time and need to focus on specific reasons for the visit.*

-if you are getting adequate exercise, you probably don't see a doctor very often.*

-I only see a doctor when I'm in pain, not for advice on my lifestyle.

-I have never found doctors to be very knowledgable or communicative on this matter.

-not much influence on me (would be helpful for 30-50 year olds). Unless a doctor is involved in fitness, they are not likely to feel it is important.*

-my doctor is treating me for osteoporosis, and has not mentioned exercise. He/she should be promoting exercise and not just treating the symptoms.*

-my doctor does not take the time to think of me in a holistic fashion.

-my doctor is conscious about my diet but not so much about exercise.

-I'm active and responsible, and I believe that people who do not exercise, eat properly, are fat, and don't listen to their doctors should pay for their own medical bills.

Figure 8 continued.

-a doctor should promote exercise if it will help a medical condition, and if I'm well, I should promote it myself.**********

-only to monitor exercise habits at regular checkups.*****

-I think my doctor knows I'm active, so it is not discussed.*****

-doctors neglect to stress the need for exercise before people become seniors so that good habits develop.

-doctors are into treating medical problems not preventing them.**

-doctor should do more preventative health care instead of prescribing medications.**

Figure 9

Open communication of physicians on their role in exercise promotion. *indicates multiple responses.

Question: What do you feel the physician's role is in promoting physical activity among older adults?

-discourage "I'm to old attitude"

-advise suitable gradual exercise both social and individual activities.

-describe specific and general health advantages.*

-avoidance of injury and lifestyle modifications.*

Figure 9 continued.

-important role because of trust and often we are the first to tell them they are unfit.*

-be aware of community exercise (low cost) to advocate regular exercise.

-by doctors promoting physical activity, it could decrease the morbidity rate.

-doctors should be proactive and supportive of exercise.*

-counselling and strong encouragement.**********

-physical activity is essential and you must practice what you preach.*

-very important, a doctor is in a position to positively direct activity programs.**

-part of treatment.

-a positive role in prescription and then referral to experts, and reinforcement for exercises.

-I see this group often and it is a good opportunity to encourage regarding lifestyle.

-a strong role for disease prevention, quality of life, and disease intervention. the doctor is the primary health consultant and authority for most elderly, and can encourage, refer, and screen for contraindications to exercise, prescribe and follow up.**

-ensure a stable medical status for exercise, education, support and direction.

Figure 9 contined.

-vital to encourage an increase in activity and a decrease in medication use.

-advise on the effect of physical activity on physical and mental well being.

-limited impact unless people want to change.

-most doctors are ill prepared to prescribe specific exercise programs, only in general terms.

-older adults find it difficult to make changes.

-unlikely to have much immediate impact, but possible to influence if consistent concern is demonstrated about physical activity.

-important but compliance among the elderly is quite poor.

CHAPTER V. DISCUSSION

Sample Characteristics Compared to Population Norms

Generalizability to the population as a whole is an important concern of survey research. The older adult sample was not a random sample as opposed to the physician group. The older adult group was the primary group examined in much of the study, therefore a comparison with population statistics will draw attention to the biases of the sample. Normative comparisons with Statistics Canada (1993) were made for age, sex, marital status, education, doctors visits/year, and activity level.

The normative comparisons show that the study sample represents younger individuals. The study represented the female/male ratio adequately. Regarding marital status, the percentages are comparable in those who are married, and single now, although the percent of those always single was under represented here.

Level of education, identified early in the study, was a potential bias. As was expected, this sample was more highly educated than the average older adult. In the general population for this age group, an average of 12% hold a university degree. Of the older adult study sample, 44% hold university degrees. Implications of this will be discussed further on in this discussion.

The sample obtained for this study were more likely than the general population to perceive their level of health as

good (55%) , [general population (43%)], or excellent (30%), [general population (19%)]. Pertaining to doctor visits in the last year, this sample was almost half (46%) as likely to have seen a doctor in the last year, as the general population (86%). This supports the elevated sense of self perceived health in this sample.

The age distribution of the older adult sample was relatively normal. However, the lower end of the scale includes a small number of respondents who are younger than 65 years old, and this will tend to account for some of the differences between this sample and the general population in level of education, self rated health, number of doctor visits a year, and activity levels.

It is difficult to ascertain normative patterns of exercise habits among older adults. Many of the surveys that include exercise use different units to calculate activity levels. An example is the Canada Fitness Survey, where activity level was classified by the amount of time spent in exercise regardless of the intensity of the exercise. Paffenbarger suggested that energy expenditure has to be in the neighbourhood of 2000 kilocalories per week to attain health enhancing results, in men. This exact figure has yet to be replicated in women, and may apply on an individual basis.

Statistical Considerations of the Sample

For the purposes of this study, sample sizes were large and variable enough to detect significant differences between the groups on the comparison variables. The unequal sample size might have been a factor if an even poorer response was attained from the physician sample. Since the numbers of respondents per group was well over 30, the unequal group size was not a problem. The physician response rate of 47% served to limit the variability in the responses of physicians, but since most of the analysis focused on the larger older adult sample, this also was not a problem. It is not possible from these group sizes to determine if there is more variability inherent in responses by physicians as a group. It is possible that factors such as age cohort of physicians, medical school location, or medical association affiliations could affect answers to the questions posited here. Another possibility is that due to the uniformity of physician socialization, physicians, as a group may hold a homogenous viewpoint relating to the questions asked of them here. A larger scale study is needed to gather that sort of information.

Two important considerations emerged from the study. First, the seven variables which represented physician support in this study demonstrated consistently high inter-correlations. These constructs may not be mutually exclusive of each other. It is possible that these seven indicators of

physician support fail to cover all the cognitive, physical, and psychosocial aspects of physician advocacy of exercise to older adults. Yet what remains is that physicians and older adults, in four of seven variables examined, held significantly different beliefs about the physician support for exercise.

The second consideration is that energy expenditure is not significantly correlated with any of the other variables in the study. The highest correlation that exists is $r=.30$, $p=.002$, with past four months (frequency of exercise). This variable is a measurement form of activity level, and so would be expected to be correlated. The older adults could be reporting their activity levels inaccurately which might obscure previous relationship patterns. Exactly why the lack of relationship between variables has occurred is unknown. Considering the lack of association between variables it is not surprising that the activity levels of older adults in this study were not associated to their perceptions of physician support of exercise.

Group Comparisons on Physician Support Variables

Fewer than seven questions may adequately assess physician support of exercise, however, since scientific research has not to date determined how physician support may enhance regular exercise, this study assessed the construct broadly. Of the seven questions representing the construct of

physician support for exercise among the two sets of subjects, one question was found to be incompatible due to different scales being used for responses. This was the variable of advice to exercise. It is difficult to speculate what the outcome may have been if the scales had been compatible. The older adult group strongly responded (43%) that their physician had never given them advice to initiate or maintain regular exercise. The physicians stated that 43% of this sample advise 40-60% of their patients to initiate or maintain regular exercise. Without statistical analysis to support the variable of physician advice to exercise, it appears that if physicians are giving advice to 50% of their patients regarding initiating or maintaining exercise, the older adults are not receiving that message, or older adults who are already active are not being told.

Both physicians and older people strongly support the statement that "regular participation in exercise can have a positive effect on one's level of health at any age". This demonstrates that most participants in this study hold an internal belief about the positive benefits associated with regular exercise. Regardless of whether or not these people participate in regular exercise, they are aware of the health benefits, and are not likely to need external counsel by health professionals on the matter.

In this study, older adults had confidence in their physicians, and physicians had confidence in themselves to

prescribe exercise programs. The fact that these two groups agree on confidence in physicians indicates that there is some potential for the doctors office to be a viable exercise promotion setting. However, a stronger contradictory statement is made by the fact that four out of the seven physician support variables were significantly different. These variables were: encouragement, influence, knowledge of community programs, and lifestyle counselling. If the doctors office environment has any potential for exercise advocacy, this study indicates that the potential is not currently being realized.

Lifestyle counselling relates to advice on other behaviours such as weight control or smoking cessation. Physician's feel that they 'often' give advice on other lifestyle behaviours while older adults have a view that cover the spectrum from 'never' to 'very often'. The range of older adults' views are revealed in their comments such as: "I have a cholesterol problem and my doctor convinced me that exercise would help"; "I only see a doctor when I'm in pain, not for advice on my lifestyle". Lifestyle behaviours are often investigated by physicians as part of a complete physical check up or as they relate to presenting medical conditions. Physicians may consider relating to lifestyle behaviours in the previously mentioned circumstances, as lifestyle counselling, while older adults may think of lifestyle counselling as a more intensive process which in not necessary

a common occurrence at a doctors appointment. The process of interpretation between what the physician says and what the patient hears may be the underlying mechanism which has restricted successful exercise advocacy in the past.

From the belief statement 'My doctor encourages me to be physically active or engage in regular exercise', significant differences arise between groups. Physicians claim that they often encourage their patients to exercise, while older adults claim they rarely receive advice. Almost fifty percent of physicians feel that they can influence their patients to exercise; which is surprisingly low since 86% were confident in their ability to prescribe exercise. The underlying theme of these results may be patient compliance.

Mentioned as the number one barrier to exercise advocacy, patient compliance is an illusive obstacle to exercise advocacy. For example, fifty percent of physicians felt they could influence exercise behaviour signifying that another fifty percent felt they could not influence exercise behaviour. Compliance levels may be related to the length of a visit, the number of visits per year, the lack of behaviour modification processes involved in diagnosis and treatment models, or other unknown factors. While physicians may be confident in their ability to prescribe exercise, whether they do prescribe exercise, and whether they do influence a patients behaviour is unclear.

The fact that four out of seven variables were

significantly different indicates that there is no clearly defined role for physicians in the area of exercise promotion, at least not within the older adult sample population. This is further illustrated by conflicting comments made by the older adults in the open communication section of the study, regarding the role of the doctor in exercise advocacy among seniors. "Dr.'s should have broader training in fitness, diet, pharmacology, and communication, and recognize they can't do it all (refer to experts)". "Fewer and more effective visits to the doctor is time and cost saving and better for the patients health" (older adult open communication). Another statement representing another point of view was, "I do not consider doctors and exercise complimentary".

Interpersonal communication may be a significant problem in the patient-physician relationship. It may also be the case that this group of older adults, being more highly educated and more active than the norm, do not rely on a doctor's counsel to engage in healthy lifestyle choices. It may be as one doctor stated in the open communication, that "doctors have an important role in health promotion, but are becoming less so in the eyes of the public due to a decrease in the status of the physician in the community". It is possible that Canadians are becoming more responsible about their own health. Overwhelmingly, the older adults reported that their own incentive to exercise was their prime

motivation to be physically active. This does not leave physician support of exercise much potential , in this sample, to be a significant force in health promotion.

Explained Variance: Is Physician Support Predictive of Higher Levels of Physical Activity?

Physician support of exercise had no association with level of exercise. One could speculate that people are not relying on their physician so much as older cohorts may have, perhaps seniors today are taking more responsibility for their own health, and perhaps at elevated levels among those more highly educated. The physician-patients relationship could simply be too brief to be effective for health promotion. In the open communication, older adults indicated that it is "hard to determine what your physician supports in a ten minute visit". Factors which influence the patient physician relationship are further discussed with the barriers to exercise promotion.

In this study age and education had no association with exercise. In most studies, age has an inverse relationship with exercise level; and level of education has often illustrated a linear relationship with exercise level. These trends are likely more evident when all levels of education are represented in a sample. Suggesting that highly educated older adults are active regardless of their age.

Health Behaviour Priority Differences

Ranking of health behaviours in order of importance facilitated a better understanding of similarities and differences between the priorities of the two groups. The most distinct difference between groups was the number one ranked behaviour (by physicians), not smoking, which was ranked as fourth by the older adults. Although there has been more extensive media education about smoking health risks in the recent past, physicians no doubt see effects that they attribute to smoking on a more regular basis. But it appears necessary to bring to the attention of both groups that while only 18% of older adults smoke, 60-70% of older adults are inadequately active. Perhaps physicians are blaming the disorders of sedentary living on smoking behaviour. Specifically examining exercise, a similar result for both groups occurred. Older adults ranked exercise second, preceded only by nutrition. Physicians ranked exercise as third, behind not smoking, and nutrition respectively. This serves to illustrate the reduced impact that exercise media campaigns have had. Exercise has less importance than nutrition in both groups in a society that is mainly over nourished and under exercised.

A repeated comment by physicians was that it was difficult to rank healthy behaviours when one thing might be more important for a certain individual, and all behaviours are important. Social support was ranked last in both groups,

likely due to support and its meaning being the least tangible factor. Apparently the message regarding the benefits of exercise has been disseminated, but not strongly enough, to respondents in these two groups. As one respondent succinctly phrased it, "I never got the message that exercise was important to health". Importantly people may hold the knowledge that regular exercise is a health enhancing behaviour, but translating knowledge into action or motivation to exercise requires strong internalization of beliefs.

Barriers to Exercise Promotion

The importance of examining the barriers faced by physicians, and older adult's perceptions of barriers faced by physicians, could be instrumental in achieving more success in health promotion generally between patient and physician.

The largest barrier confronting physicians according to their responses is the compliance level of the patients. They are often not in a position to do any follow up with exercise promotion, seeing many patients very rarely. Perhaps more referrals to fitness experts would facilitate better results in motivating people towards physical activity.

Members of the physician sample voiced an opinion that the government does not financially support health promotion, because their campaigns are not backed up with dollars to pay for this service. Until that changes, these physician do not expect any more success in endeavours of health promotion.

The next two barriers were lack of time and the reimbursement system, which have some overlap. Both are influenced by the lack of government backing for health promotion.

The older adult sample stated that the largest barrier is not enough time per visit. Many respondents commented on the impossibility of doing health promotion in ten minute visits with the doctor. Almost half of the sample felt it was not within a physician's field of expertise, many of these commenting on self responsibility for health. Consistent with the physician responses, both groups ranked illness matters as less impacting barriers to exercise promotion.

A point that has developed as a result of the group comparisons, is the incongruency between samples on the several of the physician support variables. The message appears to be that communication between patient and physician is one of the barriers to health promotion. As one older adult states "I have never found doctors to be very knowledgable or communicative on this matter". If the physicians are promoting exercise as they say they are, then it is important to find out why older adults do not appear to be receiving the message. One possibility is that the seniors who are not getting the message from physicians about the importance of exercise, may believe that exercise is for younger generations, and they are too old for change. An example from the open communication supports this idea. "I

think exercise is a universal need for those younger than myself". If communication is a barrier to exercise promotion within these populations, further in depth exploration of the problem is required.

Open Communication of Respondents

A great deal of insight is provided by both samples in the open communication from respondents in this study (figure 8, Older adults; figure 9, Physicians; Appendix C, general comments). The wide variety of answers represent a spectrum which has at one extreme point, that a physician has nothing to do with exercise promotion, and at the other point, that the physician has a great deal of influence and needs to actively promote exercise. In other words, consensus in lacking among older adults regarding the physician's role in exercise promotion.

The disparity within the older adult sample may be a result of the varying beliefs held by older adults about physicians. For example, some members of the older adult sample mention that they have spent years attending the same physician, while others say they have no family doctor, and haven't seen a doctor in years. This study encompassed several age cohorts which would have experienced differences in past contact with physicians. These differences may have included accessibility to medical services (rural versus urban dwelling), family beliefs about physician, or failure by

medical practice to provide the service expected. Although the sample of older adults may appear to be a homogenous group, these factors may contribute to diverse opinions on the role of doctors.

Doctors seem to feel that they play an important role in exercise promotion. This is illustrated by multiple responses indicating their jobs are to: encourage, educate, and enable exercise activity, as well as, screen for contraindications to exercise and lifestyle factors. Yet some, the older people do not place much confidence in physicians with regard to health promotion. Rather they tend to take responsibility for their own health and well being. As many as 90% stated that their biggest motivation to exercise was their own incentive. This theme was prevalent, in statements made by the older adult sample. For example, "it is not up to him/her, self motivation for health and exercise is important". In a stronger statement about self responsibility for health, one older adult commented "I'm active and responsible, and I believe that people who do not exercise, eat properly, are fat, and don't listen to their doctors should pay for their own medical bills".

Several factors are thought to impact whether or not people engage in regular exercise. For example, past exercise experience, socioeconomic status, education and age appear to be contributors to levels of regular exercise participation (Bouchard et al., 1990; Dishman, 1988; McPherson, 1986). One

of the most illusive aspects of exercise behaviour to date is motivation. If the physicians office is to offer any contribution to increased levels of exercise among the elderly, health problems may be the central motivator. Motivation may be the underlying construct inhibiting people who believe they do not have the time to exercise, or access to programs and facilities.

Thus far, society has not placed enough emphasis on exercise as a health promoting behaviour. As a result many other aspects of daily life have taken priority over regular exercise. In order to alter behaviours of non-exercising individuals, education about the benefits of regular exercise must be integrated into one's beliefs. Lifestyle counselling regarding prioritizing one's actions and behaviours is also appropriate to establish exercise as a regular habit. An example of priorities was illustrated in communication with a very physically active senior citizen who stated that he has less time to do other things like travelling because he is so busy with specific exercise programs. He chose to keep exercise as a priority. Health professionals may be able to motivate or increase motivation, and educate about health benefits of regular exercise, even among those who feel internally responsible for their own health. These educational processes may be influenced by the recent statement of North American Medical Associations including lack of exercise as on of the four major modifiable risk

factors for coronary heart disease. This is an important step but only the first of many required to enhance Canadian adult exercise levels.

CHAPTER VI. SUMMARY AND CONCLUSIONS

Summary

This study found disparity between fairly active older adults and physicians with regard to their perceived support for late life exercise. In four of seven beliefs for physician support, significant differences occurred between older adult and physician groups in reported physician behaviour. The constructs of: physician encouragement for exercise, physician knowledge of community programs, physician influence of exercise behaviour, and physician counselling on other lifestyle behaviours, displayed significant differences between groups. These differences predominantly occurred because the majority of physicians, indicated that they practised exercise promotion, while the majority of older adults were inclined to disagree.

There was agreement in only two of the examined physician support variables. Older adults and physicians agreed that regular exercise was a positive health-enhancing behaviour, and both groups felt confident in the physician's ability to prescribe exercise. The construct of physician advice to exercise was dropped from the comparisons due to incompatible response formats.

The disparity in perceived physician support is hard to explain. Clearly the adults in this study did not depend on their physician's support for their own activity behaviour, since 90% said the force most influencing their exercise level

was their own initiative.

In this study, there was no relationship between older adult beliefs about physician support of exercise and older adult weekly exercise levels. This may be explained by the preliminary nature of the social support instrument. Another possible explanation is the bias introduced by the highly educated self-selected sample. Self-selection bias reduces the variance in all the variables, making explanation difficult. The obvious explanation is that the two variables are unrelated, and physician support of exercise has no impact on patient exercise behaviour.

Examining group rankings of seven health promoting behaviours enabled a comparison of the value of exercise as a health enhancing tool between samples. Exercise was ranked second behind nutrition by the older adults, and third by the physicians. A majority of physicians chose not smoking as the most important health enhancing behaviour followed by nutrition. These findings indicate people are becoming more aware of, but are not yet completely informed about the health benefits of exercise. The focus on not smoking and nutrition may be inappropriate in a society that is over nourished and under active; in a population where 18% are smokers, while 60-70% are inactive. The future of exercise promotion may need to look to other strategies for increasing the activity levels of the elderly.

The three most common barriers mentioned by physicians

are patient compliance, time and system constraints. Both groups indicated that illness was a less important barrier to exercise promotion. Older adults reported time per visit was the most restricting factor in exercise promotion by doctors.

A barrier which was not included in the study design, but which may be a significant contributing factor to lack of exercise promotion, was communication. This became evident through the comparison of physician support behaviours. Physicians indicate that they often practice exercise promotion, but the older adults were not in agreement. Obviously some interpersonal component of the patient-physician relationship is compromising successful exercise promotion.

Physicians suggest that without monetary support from government agencies, health promotion in general will not prosper in the current medical clinical model. Obviously we are far from optimal conditions for health and exercise promotion. The current medical model is mandated by the government health care system and the medical associations to focus on diagnosis and treatment of disease. This has led to an effective system for technological advance, acute emergency medicine, and a pill for every problem. There are, however, areas of health which are neglected by this focus. These include health and disease prevention as a holistic endeavour, and alternative forms of medicine. There is much to be learned from a global perspective of health. Practices such

as acupuncture, herbal medicine, and Ayverdic medicine have displayed considerable success in areas where western medicine has not progressed. These include chronic diseases and prevention.

Physicians feel that a shift will not occur to prevention of disease, or to health promotion, due to the strong hold that western medicine has in government and the economy. Encouraging self responsibility for our own health and making educated choices such as using alternative medical practices as opposed to diagnosis and treatment will encourage building a more diverse health care system. Teaching people about health and well being as a broader construct than 'lack of disease' requires inclusion of several health oriented models. These models can be particularly effective in areas where deficits exist in Western medical models. Where as in China, Tai Chi and Qigong encourage balance and daily exercise, in Canada Active Living promotions are attempting to fill the void. Active living is defined as "a way of life in which physical activity is valued and integrated into daily life" (Fitness Canada, 1991, p.4), this includes activities which fit with the needs, abilities, and daily schedules of the individual. If western health professionals can be educated about and encouraged to promote active living, the success of such a model may be enhanced. This leads to the need for more clearly defined roles in exercise advocacy.

Future Research

Recommendations for future research on older adult populations include encouragement for obtaining a sample which is more representative of the general population. Diversity exists among older adults in all aspects of life, especially health matters, and unless we are able to use random or representative samples, it is impossible to obtain generalizable results.

If this work was to be replicated, older adults could be matched with their own physicians. This strategy would be particularly constructive if attempts were being made to better understand direct interpersonal components of the patient-physician relationship. Another consideration for future work might be to include in the survey design a health locus of control scale, to determine if a respondents views are altered by an internal or external locus of control for health issues.

It is possible that the barriers which are perceived by the physicians are related to the field of medicine in which they practice. That was beyond the scope of this study, but would prove advisable for future research considerations. Another important barrier emulating from this study is communication between physician and patient. By adding communication to the list of barriers examined, important information could be gathered.

An area which requires further examination towards a

better understanding of exercise participation is motivation. Specifically whether or not a physician can motivate a person to exercise through disease warnings would establish clearer roles in exercise promotion by health professionals. A study focusing on motivational capabilities of health professionals, analyzing by group characteristics such as age, education level, socioeconomic status, and levels of health of older adults, would contribute a great deal to our understanding of potential roles in exercise advocacy.

Conclusions

The message that exercise is a necessary and positive aspect of good health in late life is reaching some aspects of our society. Both older people and physicians generally appear to value exercise for health benefits. However older adults and physicians do not entirely agree on the physician support role for exercise. This indicates that there is an unknown interpersonal factor in the patient-physician relationship which may be inhibiting successful exercise promotion.

A general focus on clinical diagnosis and treatment in medicine seems to be the antagonist. If there is ever to be a shift to a more holistic approach, then government must shift the focus with financial backing. Vast changes are affecting the medical system dailv in Alberta, and this would have been an opportune time to increase finances and focus on

prevention. However, this does not appear to be the case. An example of the kind of shift necessary is currently under way in China, where a groups of physicians are experimentally being paid for keeping people healthy.

Within the older adult group, the physician support variables held no predictive ability on energy expenditure. The highly educated older adult sample may have obscured the potential variability of all variables, and so this result is not surprising, yet can not be applied to the general population. Higher education leads to greater levels of self responsibility for health, according to Edwards & Rootman (1990). This group of fairly active older adults are highly motivated to promote their own health. A different result may have occurred had it been a more sedentary, less informed random sample. It is possible that a less active, lower educated sample would have placed more reliance on physician support for their late life activity patterns.

In attempts to elevate the activity levels of our senior citizens through the present health care system, tools for physicians need to be developed for time and cost efficient lifestyle screening, and exercise prescription. Fitness professionals need to be visible to both physicians, and older adults in order to become stronger team members in health promotion. This may be accomplished by fitness experts establishing liaisons with physician groups, to become resource providers, and links in the referral chain.

Educating the public about the health benefits of regular exercise is critical and to date unsuccessful.

Historically the strongest bridges between physicians and physical educators has been between Cardiologists and exercise physiologists working together in cardiac rehabilitation programs. If we intend to garnish any benefits from health professionals in exercise promotion, physical educators must provide useful resource materials for health professionals, and display the professional knowledge base we possess. For example, active living benefit pamphlets in all offices of general practitioners and gerontologists; open communication with physicians when working with individuals who have health impairments such as arthritis, would enable doctors to learn about the skills of fitness professionals, and improve chances for getting referrals from health professionals.

If doctors as a group begin to recognize physical educators as valuable team members in health promotion, several benefits will arise.

These are: 1) exercise as a health enhancing tool will become more evident to the public; 2) doctors will be free to focus on diagnosis and treatment, while still contributing to health promotion; 3) the public and patients will receive quality education and exercise programming; 4) an active living model will be supported by a larger recognized professional body which may increase the effectiveness of the campaign.

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APPENDIX A.

PHYSICAL ACTIVITY PROMOTION STUDY

This questionnaire is for the purpose of gathering information from both the physician's perspective and the older adult perspective, on a doctor's role in promoting physical activity to older people. The purpose of collecting this information is to identify supportive factors which enable older adults to be more physically active and as a result - achieve a higher level of health.

There are no qualifications for participation in this research other than being either a physician, or an adult age 60 years or older.

The information you provide will enhance strategies for promoting physical activity to older adults.

Thank you for taking the time to fill out this questionnaire. It will take 15-30 minutes to complete. All information will be kept strictly confidential. Once complete the questionnaire is not identifiable, so that your answers remain anonymous. You may refuse to participate, or withdraw from the study at any time, and are under no obligation to answer any questions with which you have difficulty. It is most helpful when as many questions as possible are answered.

RESEARCHER:
Karen Branigan 437-1548
Please call me if you have any questions about the questionnaire.

Mailing Address: Physical Activity Promotion Study
Karen Branigan C/o Pergss
Faculty of Physical Education and Sport Studies
University of Alberta
Edmonton, Alberta.
T6G 2H9

If you would like a summary copy of the results of this study, please print your name, address, and phone number,

NAME_____

ADDRESS_____
POSTAL CODE_____
PHONE NUMBER_____.
THANK YOU FOR TAKING THE TIME TO COMPLETE THIS SURVEY
KAREN BRANIGAN.

OLDER ADULT PERSPECTIVE

Exercise for the older adult would include physical activities such as: 15-30 minutes of daily walking, an exercise class, dancing or sport activity, gardening, snow shovelling housework, or any physical activity of 20 minutes or more leading to rapid breathing or body warmth.

Please indicate your response to the following questions.

1) My doctor encourages me to engage in regular exercise.
Veryoften_____Often_____Sometimes_____Rarely_____Never_____.

2) My doctor has suggested that I take up exercise.
VeryOften_____Often_____Sometimes_____Rarely_____Never_____.

3) My doctor has given me advice about other lifestyle factors, such as smoking, nutrition, weight control, or coping with stress.
VeryOften_____Often_____Sometimes_____Rarely_____Never_____.

4) My doctor has displayed knowledge of exercise programs that exist in the community.
VeryOften_____Often_____Sometimes_____Rarely_____Never_____.

5) I have confidence in my doctors ability to prescribe exercise programs for me.
Extremely Confident_____Quite Confident_____Somewhat Confident_____Not Very Confident_____Not Confident at all_____.

6) I generally place great trust in information from my doctor concerning illness and health.
Strongly agree_____Agree_____Not sure_____ Disagree_____ Strongly disagree_____.

Please indicate how you feel about the following statement.

7) Regular participation in physical activity can have a positive effect my level of health.
Strongly agree____Agree____Not Sure____Disagree____Strongly disagree____.

8) My doctor's advice to exercise has a direct influence on my level of physical activity.
Strongly Agree_____Agree_____Not Sure_____Disagree_____ Strongly Disagree_____.

9) The most influential forms of motivation for me to participate in exercise are:
Please rank in order of influence. #1 is most influential and #5 is least influential.

_____Family
_____Spouse
_____Physician
_____Friends
_____Other please specify_____.

10) How often would you say you visit your doctor? Please check one only.

_____once a year or less.
_____four or less times a year.
_____ten or less times a year.
_____more than ten times a year.

11) How would you describe your physical fitness activity over your entire life course? Please select only one.

_____never been much involved in physical fitness activity.
_____previously active, but not any more.
_____active just recently.
_____intermittently active.
_____always been involved in physical fitness activity.

12) In general, how would you describe your current state of health?

Very Good_____Good_____Fair_____Poor_____Very Poor_____.

13) How many medicines are you taking that require a written prescription by your doctor?

Number of medications. none_____ four_____
one_____ five_____
two_____ six or more_____.
three_____

14) Please rank these items by their ability to make you healthier.

#1 is the most impact on health, and #7 is the least impact on health.

_____not smoking.
_____limiting alcohol use.
_____regular exercise.
_____adequate balanced nutrition.
_____coping effectively with stress.
_____adequate sleep.
_____adequate social support.

15) Please check or fill in the blank

Sex: Male_____ Female_____.

16) Year of birth_____.

17) Level of Education. Please check the highest level completed.

_____no formal schooling.
_____up to grade 8.
_____some high school.
_____complete high school.
_____technical or trade school.
_____some college or university.
_____university degree.
_____post graduate degree.

18) Marital status Please check one.

_____single, never married.
_____single now (widowed, divorced, etc.)
_____married.

19) HOW ACTIVE ARE YOU?

Instructions: Please record your exercise participation for the past week (even if it was not an average week). We are interested in everything that you did last week both in work and leisure time that involved your physical energy.

EXERCISE PARTICIPATION IN THE PAST WEEK

Did you do any of these physical activities in the past week? If so please say how much time you spent on each separate occasion.

	Time spent in MINUTES on each occasion						
WORK ACTIVITIES	MON	TUES	WED	THU	FRI	SAT	SUN
Work in home (sweaty)	____	____	____	____	____	____	____
Work in home (light)	____	____	____	____	____	____	____
Gardening (sweaty)	____	____	____	____	____	____	____
Gardening (light)	____	____	____	____	____	____	____
Other physical work type_____.	____	____	____	____	____	____	____

LEISURE ACTIVITIES	MON	TUES	WED	THU	FRI	SAT	SUN
Aerobic fitness class	____	____	____	____	____	____	____
Aquacize class	____	____	____	____	____	____	____
Badminton	____	____	____	____	____	____	____

Bicycling outdoors(sweaty)____ ____ ____ ____ ____ ____ ____

Bicycling outdoors (light)____ ____ ____ ____ ____ ____ ____

Bicycling indoors (sweaty)____ ____ ____ ____ ____ ____ ____

Bicycling indoors (light) ____ ____ ____ ____ ____ ____ ____

Bowling (any kind) ____ ____ ____ ____ ____ ____ ____

Calisthenics ____ ____ ____ ____ ____ ____ ____

Canoeing/kayaking ____ ____ ____ ____ ____ ____ ____

Curling ____ ____ ____ ____ ____ ____ ____

Dancing(square,tap,folk) ____ ____ ____ ____ ____ ____ ____

Dancing(ballroom,ballet) ____ ____ ____ ____ ____ ____ ____

Dancing(line,hawaiian) ____ ____ ____ ____ ____ ____ ____

Darts ____ ____ ____ ____ ____ ____ ____

Golf ____ ____ ____ ____ ____ ____ ____

Gymnastics/rhythmics ____ ____ ____ ____ ____ ____ ____

Hiking hilly terrain ____ ____ ____ ____ ____ ____ ____

Horseshoes ____ ____ ____ ____ ____ ____ ____

Jogging (warmth inducing) ____ ____ ____ ____ ____ ____ ____

Jogging (sweat inducing ____ ____ ____ ____ ____ ____ ____

Rebounding(mini trampoline____ ____ ____ ____ ____ ____ ____

Rope skipping ____ ____ ____ ____ ____ ____ ____

Rowing (machine or boat) ____ ____ ____ ____ ____ ____ ____

Skating (ice or roller) ____ ____ ____ ____ ____ ____ ____

Stair climbing (continuous____ ____ ____ ____ ____ ____ ____

Stretching exercises ____ ____ ____ ____ ____ ____ ____

Swimming (gentle) ____ ____ ____ ____ ____ ____ ____

Swimming(non-stop lengths)____ ____ ____ ____ ____ ____ ____

Table Tennis (ping-pong)	____	____	____	____	____	____	____
Tai Chi	____	____	____	____	____	____	____
Tennis	____	____	____	____	____	____	____
Walking (slow strolling)	____	____	____	____	____	____	____
Walking (warmth inducing)	____	____	____	____	____	____	____
Walking (race or speed)	____	____	____	____	____	____	____
Other_____	____	____	____	____	____	____	____
Other_____	____	____	____	____	____	____	____
Other_____	____	____	____	____	____	____	____

20) How often did you participate in vigorous physical activity long enough to get sweaty with in the past four months? Please check one.

_____not at all.
_____less than once a month.
_____about once a month.
_____about 2 or 3 times a month.
_____about once a week.
_____two or more times a week.

21) What role, if any, do you believe your doctor has, or should have in promoting physical activity?_____

_____
_____
_____
_____
_____
_____
_____
_____

22) What difficulties do you think your doctor has when prescribing physical activity or exercise programs for you?

_____not enough time per visit.
_____not within a doctor's field of expertise.
_____patients may be too ill to exercise.
_____other reasons, please specify_____

_____
_____
_____
_____
_____

General comments_____

PHYSICAL ACTIVITY PROMOTION STUDY

Dear Dr:

You have been selected as part of a random sample of Edmonton area physicians for the purpose of gathering information regarding The physician's role in promoting physical activity to older adults. This are of study is relatively untouched and your contribution would provide valuable insight into the relationship between doctor and older adults, and types of strategies that will facilitate the active living and health promotion of older adults.

As you know, older adults account for a large portion of our health care dollars. As we move to an older population base, evaluating health and fitness needs of the elderly may become a critical resource for health care professionals.

> "It (physical activity) has the ability to reduce directly the risk for several major chronic diseases as well as to catalyze positive changes with respect to other risk factors for these diseases. Dr. William Foege, former director of The Centres for Disease Control, suggests that physical activity may provide the shortcut we in public health have been seeking for the control of chronic diseases, much like immunization has facilitated progress against infectious diseases."
>
> McGinnis, 1992, p.S196.

In our current state where dollars, beds and manpower are being cut from health care, reducing the demands of an aging population must begin now. With information gained from this study it is hopeful that better resources can be developed for physicians to play an important role in enabling older adults to maintain an active lifestyle. This endeavour will not succeed without your help.

This survey will take 5-15 minutes to complete. All information will be strictly confidential and your answers will remain anonymous. If your have any questions or concerns about this questionnaire or your participation, please call me.

RESEARCHER:	KAREN BRANIGAN B.P.E.
PHONE:	452-9544
MAILING ADDRESS:	Physical Activity Promotion Study Karen Branigan C/O PERGSS Faculty of Physical Education and Sport Studies University of Alberta Edmonton, Alberta. T6G 2H9

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS SURVEY

If you would like a summary copy of the results of this study please list your name and address and a copy will be sent to you upon conclusion.

PHYSICIAN PERSPECTIVE

Exercise for the older adult would include physical activities such as: 15-30 minutes of daily walking, an exercise class, dancing or sport activity, gardening, snow shovelling, housework, or any physical activity of 20 minutes or more leading to rapid breathing or body warmth.

Please fill in the blank or check the appropriate category
1) Sex M_____ F_____.

2) In what year did you graduate from medical school?_____

3) What age were you when you graduated from medical school?_____

4) Please list the area of medicine in which practice _____ and what specialties or subspecialties you have_____
_____

5) What proportion of your regular patients would you estimate are age sixty (60) or older?
0-20%_____ 20-40%_____40-60%_____60-80%_____80-100%_____.

Please indicate your response to the following questions.

6) I generally encourage/advise my patients to engage in regular exercise.
Very Often_____Often_____Sometimes_____Rarely_____Never_____.

7) What percentage of your patients, would you say you advise to initiate or maintain some form of regular exercise.
0-20%_____ 20-40%_____ 40-60%_____ 60-80%_____ 80-100%_____.

8) I generally advise/counsel my patients on other lifestyle factors such as: Nutrition/weight control, smoking, coping with stress.
Very Often_____Often_____Sometimes_____Rarely_____Never_____.

9) I have a good knowledge of community based exercise programs for various populations.
Strongly agree_____Agree_____Not sure_____Disagree_____
Strongly disagree_____.

10) I am confident in my ability to prescribe an exercise program for my patients.
Extremely confident_____Quite confident_____Somewhat confident_____ Not very confident_____Not confident at all_____.

11) Regular participation in exercise can have a positive effect on one's level of health at any age.
Strongly agree_____Agree_____Not sure_____Disagree_____ Strongly disagree_____.

12) I can influence my patients patterns of exercise.
Strongly agree_____Agree_____Not sure_____Disagree_____ Strongly disagree_____.

13) I believe older adults are a suitable population to advise on lifestyle changes which can improve their level of health. (Age 60 years plus).
Strongly agree_____Agree_____Not sure_____Disagree_____ Strongly disagree_____.

Personal History
14) How would your describe your exercise patterns over your entire life course? Please select only one.
_____never been much involved with physical fitness activity.
_____previously active, but not any more.
_____active just recently.
_____intermittently active.
_____always been involved in physical fitness activity.

15) How often did you participate in vigorous exercises long enough to get sweaty within the past four months?
Please check one only.
_____not at all.
_____less than once a month.
_____about once a month.
_____about 2 or 3 times a month.
_____about once a week.
_____two or more times a week.

16) How would you rate your current level of health?
Very good____ good____ fair____ poor____ very poor____.

17) Please rank the following items by there ability to positively effect one's level of health.
#1 has the most effect, #7 has the least effect.
_____Not smoking.
_____Limiting alcohol use.
_____Regular exercise.
_____Adequate balanced nutrition.
_____Effectively coping with stress.
_____Adequate sleep.
_____Adequate social support network.

18) What training have you had in prescribing physical activity to your patients? (Check appropriate categories).

_____Covered in medical school.
_____Workshops or seminars.
_____Personal experience through participation.
_____Books, articles, or self taught.
_____Other, please specify_____
_____
_____.

19) What do you feel the physician's role is in promoting physical activity among older adults?_____
_____
_____
_____

20) What do you feel the physicians role is concerning health promotion in general?_____
_____
_____
_____
_____

Barrier's to health promotion

21) Please rank the following barriers by their impact on your ability to promote exercise.
#1 is most impact, #9 is least impact.

_____Time constraints.
_____Knowledge constraints.
_____System constraints (ie. billing).
_____Compliance levels of patients.
_____Legal coverage.
_____Medical health constraints.
_____Psychosocial health constraints.
_____Mental health constraints.
_____Functional health constraints. (ADL).

General Comments_____
_____
_____
_____
_____
_____
_____

APPENDIX B.

Faculty of Physical Education and Recreation
University of Alberta

Ethics Review Approval

The Ethics Committee of the Faculty of Physical Education and Recreation (University of Alberta) consisting of:

Name	Position	Department
Dr. Thomas Burton	Professor	Office of the Dean
Dr. Stu Petersen	Associate Professor	Physical Education and Sport Studies
Dr. Ann Hall	Professor	Physical Education and Sport Studies
Dr. Marcel Bouffard	Associate Professor	Physical Education and Sport Studies
Dr. Tom Martin	Associate Professor	Physical Therapy

has reviewed the proposal entitled:

Older Adult / Physician Relationship

submitted by **S O'Brien Cousins, K. Brannigan** (Principal Investigator)

__X__ finds it within acceptable standards for human experimentation

_____ finds it within acceptable standards subject to the following revisions

_____ finds it unacceptable in its present form

Thomas L. Burton
Signature of Chair

93.12.20
Date

APPENDIX C.

Older adult General Comments

-exercise should be encouraged for social benefits, which will carry over for the individual at home.

-exercise is generally recognized as beneficial, but a person must motivate oneself, there is no money in it for the doctor.**

-should be part of general visits. It is better than prescriptions. It is important due to and increase in population age (60 yrs. +) and cutbacks in medical money.*

-there is more information regarding keeping fit as one ages. Use it or loose it.

-I know I should be more active.*

-it is important to provide exercise facilities and classes specifically for seniors and various levels of fitness.

-doctors should recommend fitness centre for assessment.

-Dr's should have broader training in fitness, diet, pharmacology, and communication, and recognize they can't do it all (refer to experts). Fewer and more effective visits to the doctor is time and cost saving and better for the patients health.*

-I believe in exercise for older people, especially range of motion. I have used it and it really works. After I tried everything else, the exercise can cure many disabilities or at least help relieve the pain.

-one needs to "get in the habit" when young to make it part of living.

-the doctor referred me to a specialist and physio because of arthritis, and they give me exercise advice.

-many time they assume you know what should be done daily. They should use a questionnaire which covers lifestyle factors to improve health for seniors.

-I am generally more aware of activities, but I use my physician for limitations because of cardiovascular problems.

-in small towns seniors and parents invest to have their children active, but not much is available for seniors.

-my male doctor dismissed my pain because I was a women, the two female doctors I've had, have been holistic in nature.

-doctors are busy working with the sick. They could refer to fitness professionals like Dr. Burgess.

-my doctor doesn't take the holistic approach.

-I never got the message that exercise in important to health.

-I think exercise is a universal need for those younger than myself.

-physical activity need not be influenced by doctors, often it is influenced by friends and individual desire to be active.

-appointments with doctors are scheduled every ten minutes.

-I do not consider doctors and exercise complimentary.
-my doctors knows me and does not have to encourage me about exercise. I look after my own health.***
-I usually see a doctor for ailments, and exercise is not involved.*
-doctors generally don't practice preventive medicine, this combined with lack of knowledge of the patients personal life prevents promotion of practical exercise program.*
-I rarely go to the doctor.
-doctors are ready to prescribe pills or use knives rather than find holistic approach to treatment.*
-unless there is a problem, a doctor may find it unnecessary to counsel or advise.
-doctors should make an effort to check lifestyle practices, not enough emphasis on prevention, deals only with sickness; older people need encouragement to stay healthy.
-I walk (instead of car) whenever possible, but my husband won't if the car is available (it's frustrating).
-my doctor doesn't seem to take time to discuss this.*

Physicians General Comments

-general practitioner is most important person because of knowledge of patient/family/lifestyle factors, and provide periodic screening will play key preventative role.**
- the doctors role is to encourage healthy activities.******
-must be a social and communal endeavour in late life.
-the doctor should be an authority.
-advocate for major curriculum revision to shift emphasis from treatment and diagnosis to prevention.*
-medicine does not really deal with prevention.
-must be begun early in life as in late life it is a lost cause.
-not sure that people pay much attention to their doctors.
-fitness in health is not covered and this group finds it difficult to pay a fee for service.
-can have great effect but people need to be interested in their own health.
-the damage is already done.
-constant nagging about health issues is useless and likely counterproductive.
-important, but becoming less so in the eyes of the public due to a decrease in status of the physician in the community.
-doctors are trained to treat and diagnose but they may suggest preventative measures.
-important but it often falls on deaf ears.